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#14

SELECTED DATA ASSEMBLED FOR THE
HARMON COMMITTEE
OF THE JOINT CHIEFS OF STAFF

IM-132
28 March 1949
(Final)

CENTRAL INTELLIGENCE AGENCY

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~~TOP SECRET~~STATEMENTS OF DEPARTMENTAL CONCURRENCE OR DISSENTAIR FORCE

The Director of Intelligence, USAF, concurs in this report.

NAVY

The Director of Naval Intelligence concurs in general with the report, but see notes on page III - 19 and Table A-19.

ARMY

The Intelligence Division, Department of the Army, concurs "in those aspects of subject paper which are pertinent to the special interests of the Intelligence Division, Department of the Army."

STATE

The Intelligence organization of the Department of State dissents from the final version of this report. The dissent of this office is based on the following major points:

1. We cannot properly evaluate the figures in the final version of the report since the latter neither cites the sources used nor indicates what analysis underlies these estimates. Under such conditions, conclusions regarding the credibility of the figures presented, cannot be evaluated.

2. In our review of the report, we made a spot check of Appendix A. This check revealed a number of sizeable discrepancies between our estimates and those presented in the report. Since we have supporting material for our estimates, we cannot accept as valid the figures presented in the report.

3. We note that certain parts of the report that deal with the USSR appear to be based in large measure on uncritical use of fragmentary plant information and/or on reports of questionable reliability.

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C O N T E N T S

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- Appendix "A" - Estimated Current Annual Production of Selected Items by Country.

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~~TOP SECRET~~~~TOP SECRET~~IPRODUCTION ESTIMATES FOR THE SOVIET UNION
AND CONTINENTAL EUROPEA. GENERAL

Production figures given in this study should be interpreted with caution. As given, they represent estimated current production.* No consideration has been given to the numerous factors which would have significant effects on production, especially in case of war or if war becomes imminent. If conditions changed materially, the figures given in this study might be seriously misleading. Therefore, it is recommended that any interpretation of these figures based on different assumptions be coordinated with Central Intelligence Agency.

This office has made no detailed study of the geographical concentrations of key Soviet industries. Consequently, we are unable to analyze the percentage distributions noted in the Air Force tabulation "Industrial Importance of Selected Cities of the U.S.S.R." (submitted as Enclosure "A" of the Committee's letter). However, on the basis of very limited information we have been able to detect certain apparent discrepancies. These have been noted in C below together with Air Force revisions and Army recommended changes. In addition, the Army has concurred in the distribution of productive capacity in the columns headed "Armaments" and "Tanks and Self-Propelled Guns."

The degrees of accuracy which can be ascribed to the production figures in this study vary considerably. Generally, where figures are given for non-Soviet European production they are considered to be more accurate than those given for the Soviet Union and its satellites.

* This is consistent with the modified terms of reference for this study as arrived at in a meeting on 21 February with members of your committee.

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For Soviet production, the following indicates our estimated margins of error applicable to the items reported on.

| <u>Industry</u> | <u>Margin of Error</u> <u>(Plus or Minus)</u> |
|--------------------------------------|--|
| Steel | 10% |
| Petroleum | 15% |
| Chemicals | 20% |
| Synthetic Rubber | 20% |
| Motor Vehicles | 10% |
| Guns, Tanks, and Self-Propelled Guns | 20% |
| Railroad Equipment | 10% |
| Electrical Equipment | 15% |
| Electronic Equipment | 20% |
| Merchant Shipbuilding | 25% |
| Machine Tools | 20% |
| Bearings | 10% |
| Aircraft and Airframes | 25% |

There are no indications that excess productive capacity is being developed* in any of the critical items covered herein since most of them are in short supply. It is noted, however, that the Army estimates that the U.S.S.R. has probably developed* excess productive capacity in the munitions industry. This belief is based in part on the Soviet prewar policy and in part on the postwar emphasis on regional self-sufficiency. In the period from 1920 to 1940, the Soviets constructed many more munitions plants than were needed to supply their peacetime requirements. During that period these plants operated at partial capacity and were ready for a very quick conversion to full wartime production. This program proved its value in the first few months of World War II, when it was possible for the production of munitions to be increased rapidly despite the serious disruption of industry caused by the German invasion. The evidence available at present indicates that the Soviets are continuing their prewar program.

* Underlined for emphasis.

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B. SUMMARY TABLE OF ESTIMATED CURRENT ANNUAL PRODUCTION OF SELECTED ITEMS
IN THE SOVIET UNION AND CONTINENTAL EUROPE*

| Item | USSR | Satellites | Total Soviet | Non-Soviet Continental Europe | Total |
|----------------------------|---------|------------|-----------------|-------------------------------------|----------|
| STEEL | | | | | |
| (Thousands of Metric Tons) | 18,000 | 5,815 | 23,815 | 29,326 | 53,141 |
| PETROLEUM | | | | | |
| (Thousands of Metric Tons) | | | | | |
| Crude | 32,150 | 6,115 | 38,265 | 1,169 | 39,434 |
| Refined Products | 29,613 | 6,540 | 36,153 | 13,334 | 49,487 |
| Combat Aviation Gasoline | 973 | 312 | 1,285 | --- | 1,285 |
| CHEMICALS | | | | | |
| (Thousands of Metric Tons) | | | | | |
| Sulfuric Acid | 6,774.5 | 2,396.3 | 9,170.8 | 11,054.0 | 20,224.8 |
| Nitrogen | 4,000 | 755 | 4,755 | 5,433 | 10,188 |
| Calcium Carbide | 630 | 257 | 887 | 1,061 | 1,948 |
| Soda Ash | 263 | 298 | 561 | 875 | 1,436 |
| Caustic Soda | 241 | 355 | 596 | 1,712.6 | 2,308.6 |
| Chlorine | 416 | 344 | 760 | 611.5 | 1,371.5 |
| Methyl Alcohol | 209 | 51.5 | 260.5 | 384.4 | 644.9 |
| Ethyl Alcohol | 115 | 14.5 | 129.5 | 90.2 | 219.7 |
| Benzol | 601 | 245.3 | 846.3 | 650.8 | 1,497.1 |
| Toluol | 241 | 76 | 317 | 241.7 | 558.7 |
| | 58.5 | Unknown | 58.5 | 32.4 | Unknown |
| RUBBER | | | | | |
| (Thousands of Metric Tons) | | | | | |
| Synthetic | 160.8 | 20 | 180.8 | 0 | 180.8 |
| Natural | 160 | 20 | 180 | 0 | 180 |
| | 0.8 | 0 | 0.8 | 0 | 0.8 |

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| Item | USSR | Satellites | Total Soviet | Non-Soviet Continental Europe | Total |
|--|-----------|--|--------------|-------------------------------------|---------|
| TRUCKS & BUSES (Units) | 275,000 | 12,500 | 287,500 | 148,700 | 435,800 |
| PASSENGER AUTOMOBILES (Units) | 25,000 | 21,000 | 46,000 | 242,600 | 288,600 |
| GUNS & TANKS | | | | | |
| Artillery Pieces | 21,000 | 960 | 21,960 | 852 | 22,812 |
| Tanks | 15,000 | 840 | 15,840 | 588 | 16,428 |
| Self-Propelled Guns | 4,200 | 0 | 4,200 | 84 | 4,284 |
| LOCOMOTIVES (Units) | 1,600 | 1,065 | 2,665 | 1,297 | 3,962 |
| FREIGHT CARS (Units) | 110,000 | 44,450 | 154,450 | 77,000 | 231,450 |
| RAILS (Metric Tons) | 900,000 | Too many unknown quantities to permit summary. | | | |
| ELECTRIC EQUIPMENT (Kilowatts) | 2,000,000 | Unknown | Unknown | Unknown | Unknown |
| ELECTRONIC EQUIPMENT | | | | | |
| Radio Receiving Sets (Non-military) | 576 | 439 | 1,015 | 2,742 | 3,757 |
| Radio Tubes (Thousands of Units) | 18,000 | 4,000 | 22,000 | 19,448 | 41,448 |
| Radar Sets (Units) | 50 | | | | |
| Transmitting and Receiving Sets (Military Type) | 125,000 | | | | |

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| Item | USSR | Satellites | Total Soviet | Non-Soviet Continental Europe | Total |
|---|------------|------------|--------------|-------------------------------|------------|
| NAVAL SHIPBUILDING (Capacity in Tonnage) | | | | | |
| | 120,450 | 6,000 | 126,450 | 95,000 | 221,450 |
| (No reliable way of presenting naval tonnage on an annual basis but figures useful to indicate estimated relative capacity. See Tab "B" verso for data on Major Soviet Naval Shipbuilding Yards.) | | | | | |
| MERCHANT SHIPBUILDING (Gross Tons of Self-Propelled Vessels over 100 GT) | | | | | |
| | 100,000 | 109,000 | 209,000 | 990,000 | 1,199,000 |
| MACHINE TOOLS (Metric Tons) | | | | | |
| | 22,500 | 12,750 | 35,250 | 150,815 | 186,065 |
| BEARINGS (Thousands of Assembled Bearing Units) | | | | | |
| | 40,000 | 500 | 41,250 | 98,800 | 140,050 |
| AIRCRAFT AIRFRAMES (Pounds) | | | | | |
| | 68,982,000 | 2,633,800 | 71,615,800 | 3,789,403 | 75,405,203 |
| AIRCRAFT ENGINES (Horsepower) | | | | | |
| | 71,460,000 | 338,840 | 71,798,840 | 752,647 | 72,551,487 |

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~~TOP SECRET~~C. Comments on Tabulation, "Industrial Importance of
Selected Cities of the U.S.S.R."1. Air Force.

The tabulation submitted by your Committee as
Enclosure "A" to your memorandum* request has been reviewed
by the Director of Intelligence, U.S. Air Force. Changes
in percentages recommended by the Air Force follow.

| Industry/Location | Percent as Shown in Enclosure "A" | Percent Proposed Change |
|--|--------------------------------------|----------------------------|
| <u>COMBAT A/C ENGINES</u> | | |
| Kuibyshev | 25.2 | 20 |
| Leningrad | 0 | 2 |
| Molotov | 17.2 | 13 |
| Moskva | 6.2 | 20 |
| Omsk | 6.3 | 4 |
| Gorkiy | 5.4 | 7 |
| Kazan | 12.6 | 11 |
| Shcherbakov | 0 | 3 |
| Zaporozhye | 0 | 2 |
| <u>ARMAMENTS</u> | | |
| Mariopol | 0 | 5 |
| <u>TANKS & SELF-PROPELLED GUNS</u> | | |
| Mariopol | 0 | 28.5 |
| <u>AV-GAS CAPACITY</u> | | |
| Orsk | 14.5 | 13.9 |
| Chkalov | 18.7 | 0 |
| Groznyy | 22.6 | 30.9 |
| Saratov | 18.7 | 25.8 |
| Ufa | 11.6 | 16.0 |
| Guriev | --- | 13.4 |
| <u>ELECTRONIC TUBES</u> | | |
| Leningrad | 12.5 | 24 |
| Moskva | 37.5 | 10 |
| Novosibirsk | 10 | 12 |
| Gorkiy | 1 | 8 |
| Tbilisi | 5 | 3 |
| Ufa | 1 | 5 |

* Earlier identification--does not refer to this report.

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| Industry/Location | Percent as Shown in Enclosure "A" | Percent Proposed Change |
|-------------------|--------------------------------------|----------------------------|
| <u>STEEL</u> | | |
| Baku | 0 | 2 |
| Chelyabinsk | 2.6 | 3.0 |
| Dneprodzerzhinsk | 1.7 | 1.9 |
| Dnepropetrovsk | 1.4 | 1.7 |
| Gorkiy | 2.5 | 1.5 |
| Izhevsk | 1.4 | 1.8 |
| Kolomna | 0.3 | 0.4 |
| Komsomolsk | 0.8 | 0.9 |
| Krasnoyarsk | 0 | 0.2 |
| Leningrad | 0.6 | 0.7 |
| Magnitogorsk | 19.0 | 19.5 |
| Makayevsk | 2.0 | 2.6 |
| Mariopol | 3.6 | 4.9 |
| Molotov | 2.0 | 1.4 |
| Moskva | 2.1 | 2.0 |
| Nizhniy Tagil | 4.0 | 4.9 |
| Ordzhomikidze | 1.6 | 1.9 |
| Stalingrad | 4.3 | 5.4 |
| Stalino | 1.7 | 2.6 |
| Stalinsk | 13.8 | 16.3 |
| Sverdlovsk | 1.6 | 1.9 |
| Taganrog | 1.7 | 1.3 |
| Voronezh | 0.4 | 0.1 |
| Zlatoust | 2.4 | 1.4 |

COKE

| | | |
|---------------|------|------|
| Chelyabinsk | 4.6 | 5.0 |
| Kemerovo | 9.7 | 10.0 |
| Magnitogorsk | 20.4 | 19.0 |
| Makayevsk | 1.3 | 4.0 |
| Mariopol | 4.3 | 9.0 |
| Ordzhomikidze | 1.1 | 20.0 |
| Stalino | 1.9 | 4.0 |
| Stalinsk | 10.2 | 11.0 |

SYNTHETIC AMMONIA

| | | |
|---------------|---|---|
| Ordzhomikidze | 0 | 4 |
|---------------|---|---|

2. Army

The following figures are submitted by the Intelligence Division/ GSUSA as a substitute for the percentages in the column on the Tabulation headed "Electronic Tubes." The basis for calculating these figures is arbitrary, but an effort has been made to reflect the greater military importance of centers where more specialized kinds of tubes are made (e.g., cathode ray tubes for radar and television, very high frequency tubes, and the like).

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| Industry/Location | Percent as Shown In Enclosure "A" | Percent Proposed Change |
|----------------------------------|--------------------------------------|----------------------------|
| <u>ELECTRONIC TUBES</u> | | |
| Gorki | 1 | 10 |
| Leningrad and vicinity | 12.5 | 25 |
| Moscow and vicinity | 37.5 | 32 |
| Novosibirsk | 10 | 23 |
| Riga | 5 | 0 |
| Sheherbakov | 5 | 1 |
| Tashkent | 5 | * |
| Tbilisi | 5 | 1 |
| Ufa | 1 | * |
| Areas now shown on Enclosure "A" | <u>18</u> | <u>8</u> |
| | 100 | 100 |

* Less than 1 percent.

3. Central Intelligence Agency

To date CIA has not made sufficient study of Soviet production on an area basis to permit it to contribute to the detailed study made by the Air Force, or to evaluate it properly. Based on information available to us, we do, however, offer the following comment on the Air Force Tabulation.

MOTOR VEHICLES

The truck plant at Dnepropetrovsk was under construction in 1948 and it is doubtful that any production was obtained during that year. Production at this plant during 1949 may not amount to more than 1,000 vehicles. Plans for 1950 contemplate that it will produce 60,000 vehicles which would be roughly 8 percent of total planned production for that year.

The Tabulation omits reference to the plant at Miass in the Urals. This plant produced about 24,000 trucks in 1948 and its productive capacity is being expanded.

Ulyanovsk and Yaroslavl plants produced a total of about 18,000 trucks in 1948. The productive capacity of these plants is also being expanded.

The following revision of the "Motor Vehicles" column is recommended:

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| Industry/Location | Percent as Shown in Enclosure "A" | Percent Proposed Change |
|-----------------------|--------------------------------------|----------------------------|
| <u>MOTOR VEHICLES</u> | | |
| Dnepropetrovsk | 7 | 0 |
| Gorkiy | 48 | 50 |
| Moskva | 33 | 29 |
| Miass | 0 | 12 |
| Ulyanovsk) | 6 | 9 |
| Yaroslavl) | | |

MACHINE TOOLS

The Tabulation covers only 73.6 percent of total national capacity. Related industries may have been included in some of the figures and not in others. This chart uses 19 place name citations to arrive at its 73.6 percent total, while our records show 176 place names with 509 plants. Perhaps Enclosure "A" slightly overestimates some of the smaller machine tool locations. This subject needs further research, and this office believes such records exist for a more thorough study.

Although Moscow remains the largest center of production, some of the machinery and plants from this and other western cities had been moved eastward. Installations in the West were heavily damaged in World War II and most have not been restored, while new facilities are being built in the East.

BEARINGS

The Tabulation shows 97 percent of total bearing capacity at the cited locations. To get this total the chart shows only five cities with bearing installations, of which some, in addition to manufacturing, are probably bearing processing and repair plants. An important plant not included is the one at Tomsk. Other new or expanded facilities exist at Baku and Bezymyanka. Processing and repair installations of importance are also located at Alma Ata, Gomel, Rostov, Tashkent, Samara, Zlatoust, and Novosibirsk.

The Moscow percentage, 53 percent, is nearly correct so far as overall bearing manufacture and processing is concerned.

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However, ball manufacture is necessarily highly centralized, so that some 75 percent of ball manufacture for the USSR probably takes place in the Moscow area.

COMBAT AIRCRAFT ENGINES AND COMBAT AIRFRAMES

The word "Combat" should be deleted from these two column headings and the new headings be made to read "Aircraft Engines" and "Airframes." This change has been coordinated with A-2, USAF.

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~~TOP SECRET~~IISTOCKPILING IN THE USSR1. MILITARY SUPPLIESa. General plan

Soviet policy concerning procurement and stockpiling of military supplies is determined by the Council of Ministers and the Presidium of the Supreme Soviet. This policy is translated into concrete proposals and directives by the State Planning Commission, in consultation with the Minister of Armed Forces; plans are then established by the Armed Forces General Staff. The Ground Forces, Air Forces, Naval Forces, Rear Services, the Ground Forces branches of service, and various independent components of the Ministry of Armed Forces develop detailed procurement programs in accordance with instructions of the General Staff.

Responsibility for general coordination and development of the activities of all supply agencies in the Armed Forces rests with the Chief of Rear Services, who is one of the six deputy ministers of the Ministry of Armed Forces. He is also immediately responsible for procurement, storage, movement, and distribution of Ground Forces general supplies.

After final acceptance by Armed Forces representatives, equipment and supply items normally are transported to depots of the Ministry of the Armed Forces. These depots are maintained by the four main components of the Armed Forces Ministry and by the technical arms and services. The depots contain current Armed Forces requirements and GHQ reserves of supplies and equipment at a level set by the Ministry of Armed Forces. From them come the replacement supplies for the troop units and establishments of each military district or army group and the reserve supplies of each command. An Armed Forces depot usually consists of a headquarters and

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numerous warehouses, workshops, laboratories, open storage areas, and vehicular parks, with the entire installation under guard by MVD troops.

b. Location of stockpiles

Location of these major supply depots follows a logical pattern, determined by location of troop concentrations, rail centers and networks, and strategically important areas, such as Leningrad, Moscow, the Middle Volga region, the Transcaucasus, and the European border area. They are sited in compliance with instructions from the General Staff of the Soviet Armed Forces in accordance with operation and tactical requirements.

In occupied areas much the same principles govern the location of supplies, in that they follow the pattern of troop concentrations and maneuver areas as well as being located along the main transportation lines. Limited information available indicates that Soviets in the occupied areas are using existing German army storage and supply facilities.

Inadequacy of information on possible Soviet supply depots in satellite countries makes impossible a reasonable estimate on the location of these depots.

c. Tabulation of stocks on hand

(1) Army supplies

The table below lists stocks on hand of certain principal items on which information is readily available.

| <u>Equipment</u> | <u>U.S.S.R.</u> | | <u>Occupied Zones</u> | |
|----------------------------------|-----------------|-----------------|-----------------------|-----------------|
| | <u>W/troops</u> | <u>Reserves</u> | <u>W/troops</u> | <u>Reserves</u> |
| Tanks & Self-Propelled Guns | 11,000 | 31,200 | 7,900 | 1,600 |
| Armored Cars | 1,300 | 100 | 900 | -- |
| Military Vehicles | 139,500 | 1,197,500 | 57,300 | 300 |
| Artillery Pieces 75 mm and above | 11,400 | 88,500 | 3,200 | 300 |
| Mortars 82 mm and above | 17,950 | 62,900 | 5,925 | 1,200 |

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~~TOP SECRET~~(2) Air Force supplies

It is impossible to estimate stockpiling of Soviet aircraft and component parts. An estimate of aircraft on hand, however, can be given.

The overall strength of the Air Forces of the Soviet Union is estimated at 17,000 aircraft assigned to operational units. Of these, 15,200 aircraft are combat types. In addition, in case of military emergency it is believed that of the 3,000 major transports currently estimated to be assigned to the Civil Air Fleet, 1,500 could be made immediately available for military duty, with an additional 1,000 available after a short time should the situation warrant.

The satellite countries are estimated to have a total of 2,343 combat and 664 non-combat aircraft.

(3) Naval supplies

No statistical data are available on the type, locations, or quantities of Soviet naval supplies. Stockpiling of naval munitions is known to exist at the operating bases of Sevastopol, Polyarnoe, and Nahodka. It is presumed that storage facilities exist at all the operating bases. The large underground storage space at Sevastopol is being reopened and repaired.

The Soviet Navy is believed to exist on current supplies and materials made available to it as occasion demands. Adequate supplies of fuel oil are available in the Northern Baltic and the Black Sea areas, but are in short supply in the Far East. It is known that a six-months' supply is kept on hand in the Pacific area, and the Fleet has great difficulty in securing even this. There is no intelligence to indicate the extent of fuel oil stockpiling in the European naval areas, but it is reasonable to assume

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that sizable stockpiles are and can be maintained. With respect to the Far East, although some intelligence indicates minor stockpiling of fuel oil there are no figures available.

The estimated current Soviet naval vessel strength is tabulated below:

| <u>TYPE</u> | <u>NUMBER</u> |
|----------------------|---------------|
| Old Battleships | 3 |
| Heavy Cruisers | 7 |
| Light Cruisers | 4 |
| Destroyers | 61 |
| Escort Destroyers | 39 |
| Submarines | 281 |
| Gunboats | 5 |
| Frigates | 45 |
| Coast Defense Vessel | 1 |
| Fast Transport | 1 |
| Minesweepers | 146 |
| Minor Combatant | 1874* |
| Naval Auxiliaries | 217 |

*Includes motor torpedo boats, patrol craft, coastal and harbor defense launches, etc.

2. POL PRODUCTS

a. General plan

Since there is every evidence that Soviet POL stockpiles had been completely depleted at the end of World War II, it is believed that sufficient time has not elapsed to enable the Soviets to accumulate significant stocks of light fractions. In addition, limited cracking-plant capacity has perpetuated the short supply of light fractions, particularly high-grade gasoline and lubricants.

The Soviets have pursued a plan to establish a reserve of POL products by vigorous exploitation of indigenous crude oil, stringent allocation of domestic production, utilization of synthetic fuels and imports from the satellites. Should the USSR find it impossible to stockpile from indigenous production, it is likely to call on Rumania to provide additional supplies. Thus provision of some oil for stockpiling seems reasonably certain in any event.

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~~TOP SECRET~~~~TOP SECRET~~b. Location of stockpiles

The location of actual POL stockpiles in the U.S.S.R. is unknown except for the existence of a few dispersed storage facilities and those at refineries. The primary concentrations of storage facilities in the U.S.S.R. are: (1) within the triangle bound by UFA, Gorki, and Saratov (probably to meet the fuel requirements of refining and cracking facilities and to supply recent industrial developments where local oil production is insufficient); (2) in the region encompassing Baku, Makhach-Kala, and Grozny (apparently for temporary storage pending transshipment of petroleum); (3) in the region extending from the south of Moscow to Cherepovets; and (4) around Vladivostok in connection with the Soviet naval and military establishments.

All of these regions contain open storage pits.

c. Tabulation of stocks on hand

A tabulation of Soviet supply, imports, and consumption of POL and synthetic refined products for 1948 shows a cumulative surplus of 800,000 metric tons of gasoline, kerosene-jet, tractor and diesel fuels, and lubricants; whereas heavy fractions, such as residual fuel oils, account for a surplus of 2.7 million metric tons.

The extent to which the above surplus has been built up for strategic purposes cannot be accurately estimated because available information does not allow for any differentiation between a commonly followed industrial practice of keeping reserves on hand and the accumulation of surpluses for strategic purposes. Nevertheless, there has been substantial evidence in 1948 that the Soviets have implemented a strategic POL stockpiling project.

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TABULATION OF POL SURPLUS
AVAILABLE FOR STOCKPILING, 1948
(Million Metric Tons)

| <u>LIGHT FRACTIONS POL</u> | | | <u>HEAVY FRACTIONS</u> | | | <u>TOTAL REFINED PRODUCTS</u> | | |
|----------------------------|-----------------|----------------|------------------------|-----------------|----------------|-------------------------------|-----------------|----------------|
| <u>Supply</u> | <u>Consump.</u> | <u>Surplus</u> | <u>Supply</u> | <u>Consump.</u> | <u>Surplus</u> | <u>Supply</u> | <u>Consump.</u> | <u>Surplus</u> |
| 17.7 | 16.9 | .8 | 13.5 | 10.8 | 2.7 | 31.2 | 27.7 | 3.5 |

As far as is known there is no stockpiling of POL in any of the Satellites with the exception of Czechoslovakia. A plan was reported that provided that 40% of imported and 65% of synthetic motor fuel was to be set in reserve starting in August 1948, giving an annual stockpiling rate of 100,000 tons of motor fuel. This is supported by two additional reports. One states that the stock target between August and December 1948 was 45,000 tons; the other, that half the petrol consumption (about 200,000 tons) was to be reserved for military stocks.

Three of the principal depots are located at Domasin near Vlasim, Hnevice between Roudnice and Melnik, and in the valley between Vsetin and Novy Hrozenkov, which had been one of the largest in Czechoslovakia and served all of Moravia and Slovakia. In January 1949, it was reported that the Novy Hrozenkov underground reserves had been transferred to the U.S.S.R. The other two dumps are located in Bohemia not far from Prague.

3. FOOD

a. General plan

While the U.S.S.R. undoubtedly desires to have such tremendous food stocks as to equal about one year's normal consumption, difficulties of procuring, storing, and preserving food severely limit accomplishment of the goal. At the end of the war, it is believed that the U.S.S.R. had stocks of bread grains, and additions were undoubtedly made from crops of postwar years. Sugar, oilseeds, and, to a lesser extent, other foodstuffs are being stockpiled.

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In the satellite countries, although there must be some small reserves of grain, no concerted stockpiling of foodstuffs is apparent. In Albania, a committee having direct control of the stockpiling of agricultural products has been established; while Rumania and Bulgaria are reported to be building grain elevators and "shelters" for foodstuffs. Rumania is reportedly planning to increase the number of grain elevators in the next five years from 32 to 59. In the Soviet Zone of Germany, Soviet authorities, in July 1948, ordered each area to build up a three-months' stockpile of grain.

b. Location of stockpiles

There are no large concentrated physical stockpiles of foodstuffs in the U.S.S.R., the Soviet Zone of Germany, or the satellite countries. Extant stocks are scattered in large and small grain elevators, warehouses, and sheds throughout the Soviet bloc, part being stored on the farms.

c. Tabulation of stocks on hand(1) Breadgrains

It is estimated that, as of 30 June 1949, total breadgrains available to the Soviet Government (above and beyond human and other consumption for 1948-49) will be about 8 million metric tons, or about three-months' supply at the current rate of consumption. Breadgrain reserves in the satellite countries and the Soviet Zone of Germany may reach one million metric tons, as of 30 June 1949.

(2) Sugar

It is estimated that the sugar stockpile in the U.S.S.R. may be about 250,000 metric tons by 30 June 1949; in the satellite countries and the Soviet Zone of Germany, about 50,000 metric tons.

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(3) Fats and oils

Stocks of oilseeds in the U.S.S.R. and satellite countries are negligible.

(4) Other foodstuffs

Stocks of foodstuffs capable of storage (canned, salted, or otherwise preserved) are considered to be very small.

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~~TOP SECRET~~IIISOVIET DEFENSE MEASURES1. MEASURES TO MINIMIZE ATOMIC ATTACK

Recognizing the likelihood of an atomic attack in any future war, the U.S.S.R. has made considerable effort since 1945 to minimize its effects. Information on this point is in most instances limited and speculative.

a. Education and Training

There is evidence of a comprehensive civilian and military program of training in defense against atomic attack. Osoaviakhim, the former civilian defense organization, was training civilians for atomic air raids prior to its re-organization in May 1948. It may be assumed that Dosarm, Dosflot, and Dosair, its successors, are continuing this work. Training by means of elementary texts and visual aids, is reported also to have included, particularly in strategic areas, simulated atomic air raids, the mass movement of populations, and instruction in the detection of radioactivity. It is considered likely, however, that Soviet citizens are still psychologically ill-prepared for the consequences of atomic attack. It is reported also that all ranks of the Soviet Armed Forces are receiving instruction in the effects of the atomic bomb, and are being trained in defense against it. The Soviet policy-makers have evidently decided to belittle the atomic bomb's powers at every opportunity and to minimize its dangers to the U.S.S.R. Every bit of information that can be interpreted in this sense is seized upon at once for its propaganda value.

b. Underground construction

Since 1945 some emphasis has been placed upon the underground construction of fortifications, supply depots, critical industrial establishments, and airfield installations. (See also below, 5)

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1. c. City planning

While the effectuation of such plans is unknown and presumed small, the development of urban areas on the basis of the known effects of atomic explosion has assumed a place of importance in the MPVO (local anti-aircraft defense).

d. Conventional defenses

To the degree that improved systems of early warning, through radar and communications nets, fighter and anti-aircraft defenses, and the general program of industrial dispersion, will increase the difficulties of bombardment, these may be considered inspired in part by the threat of atomic attack.

2. DISASTER CONTROL

The U.S.S.R. is able to draw heavily upon the experience of World War II for techniques and for personnel trained in disaster control.

a. Organization

The general wartime civilian defense organization, Osoaviakhim, was replaced in 1948 by Dosarn, Dosflot, and Dosair, working respectively with the ground, sea, and air forces. Together they have a reservoir of 16 million civilian personnel trained by Osoaviakhim as fire fighters, air raid wardens, first aid personnel, and other disaster-control specialists. In addition, the U.S.S.R. Public Health System is able to exercise coordinated control over both medical and scientific personnel, enabling the government, in the event of disaster, to place combined medical-scientific teams in a stricken area.

b. Plans

Comprehensive plans have been devised against both C.W. and B.W., including plans for the issuance of protective gear, the protection of water supplies, hospitalization, travel controls, dispersion of the population, and even the liquidation of B.W.-infected victims to prevent contagion.

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3. DISPERSION IN INDUSTRY

a. Objective

The objective of the dispersion of industry in the U.S.S.R. is two-fold: to reduce dependence upon long-distance overland transportation routes through the creation of industrially self-sufficient areas; and to reduce the vulnerability of Soviet industry to air attack.

b. Trend

Dispersion has resulted in the creation of huge new industrial concentrations at several points. The present trend, however, appears to be in the direction of smaller industrial units manufacturing all the parts going into a given product. In addition, the new industrial complexes are intended to become more self-sufficient in the matter of food supply.

c. Plans

Details are lacking on any general plan of dispersion, but it is reported that each specific branch of the Soviet war industry is divided into at least three territorial groups, located far enough apart so that in the event of war, Russian industry will never be completely paralyzed. A recent report states that the U.S.S.R. plans to divide the country into seven theatres of operation, each organized as an independent economic-military unit with its own stocks of reserve equipment, arms, fuels, and food. The groups are:

- (1) Western Group: Eastern Germany, Poland, Czechoslovakia, and "in some respects" Moscow;
- (2) Northwestern Group: Leningrad, and "in some respects" Moscow and Gorki;
- (3) Southwestern Group: Kharkov region and the Dnieper basin;
- (4) Caucasian Group: Baku-Tiflis region and the Donbas;

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~~TOP SECRET~~c. Plans (cont'd)

(5) Southeastern Group: New Kazakhstan, New Emba, and Fergana;

(6) Far Eastern Group: Baikal Sea region (Irkutsk) and Khabarovsk;

(7) Arctic Group: Komsomolsk region.

It was further stated that as long as communications can be preserved, each of the seven groups is to be given support from "the central strategic reserves" in the Kuzbas and the Donbas. There is no confirmation of any such plan and no evidence that it has been implemented.

d. Achievements 1/

Although considerable development has taken place in certain areas, progress toward regional industrial integration has not yet reached a point where self-sufficiency has been established in any single area of the U.S.S.R.

However, since 1940 Soviet industry has been considerably dispersed from its prewar concentrations to extend throughout six regions -- the Urals, Central Asia (Tashkent-Kazakhstan), Western Siberia (Tomsk), Southern Siberia (Irkutsk) Eastern Siberia (Dalstroi-Magadan) and Southeastern Siberia.

Although the present industrial capacity in these Eastern areas represents only approximately 35 to 40 percent of total capacity (in comparison with a prewar capacity of about 15 to 25 percent), the significance of this area in

1/ ONI believes that this section tends to overestimate the importance of the Eastern areas. Their development has been found more uneconomical than that of the Western areas. While percentage increases in production are much greater than those in the West, ONI believes that the greater resources and production of the West will continue to make it of greater economic importance for some time to come. Population increase in a few Eastern cities is significant, but their populations remain small compared

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terms of its potential for war support is more in the order of 50 to 60 percent of total capacity. The last war was largely responsible for the accelerated shift from East to West, consequently Eastern industrial capacity is distinguished by its basic nature and the importance of munitions production.

The Donbas, major coal producer in the west, representing 52 percent of the total prewar output, will account for only 35 percent of the U.S.S.R. output in 1950, despite an increase in Donbas production. While oil output in the Trans-Caucasus and Western area constituted 86.3 percent in 1940, developments in the Urals, Emba, Turkmen and Central Asia will reduce the Western share to 62 percent by 1950, and it is believed that synthetic production is also being pushed in eastern centers.

Pig iron, steel, and rolled steel production in the Eastern area almost doubled between 1940 and 1945. Even after the Western area recovers its prewar output level, the capacity of the Eastern area will be approximately 50-60 percent of the total Soviet output.

Since ferrous metallurgy continues to expand in Eastern areas, while Western reconstruction lags, the Eastern area share in total U.S.S.R. output will probably be nearer 60 percent than 50 percent at the time the West has fully recovered.

Priority over all other areas is being given to the development of eastern railroads. Fifty percent of new railroad lines currently planned are to be located in the Eastern area.

Whereas total prewar generated capacity was roughly 10,000,000 kws, plans for eastern additions alone amounted to 4,000,000 kws. While reconstruction of such major projects as the Dnieper plant in the West has fallen behind plan, new construction in the Eastern areas has been pushed, thus indicating the priority of Eastern power developments to the detriment of Western reconstruction.

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The wartime trend of a population shift to the Eastern areas is continuing.

POPULATION INCREASES IN A FEW EASTERN CITIES

| | <u>1939</u> (000) | <u>1948</u> (est. in 000) |
|--------------|-------------------|---------------------------|
| Alma Ata | 231 | 400 |
| Komsomolsk | 71 | 190 |
| Magnitogorsk | 146 | 250 |
| Novosibirsk | 406 | 800 |
| Omsk | 281 | 520 |
| Sverdlovsk | 426 | 750 |
| Tashkent | 585 | 700 |

4. TRANSPORTATION VULNERABILITY

The U.S.S.R. is making great efforts to reduce the extreme vulnerability of the inland transportation routes upon which it depends. The principal means are, 1) paralleling existing routes; and, 2) by-passing points of unusual congestion or vulnerability.

a. Rail transport

Railways carry about 90% of the total inland traffic of the U.S.S.R. and this dependence makes their vulnerability a matter of first importance. Despite the enormous World War II losses to the rail network of Western Russia, the U.S.S.R. has undertaken major construction programs in other parts of the country. In addition to Soviet construction, the U.S.S.R. has presumably directed and controlled the significant railway projects of the satellites.

(1) Construction in the U.S.S.R.

The construction of parallel and by-pass railroad lines makes up a large part of the railroad construction program of the U.S.S.R. Most of the construction has economic as well as military justification, and is not in the nature of standby alternate routes that will be used only if the

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normal routes are inoperable. By-passing has not eliminated significant focal points in the Soviet railway system. The chief examples, under construction or recently completed, follow:

(a) The Baikal - Amur Magistral (BAM) Railway, now under construction, parallels the Trans-Siberian Railroad from near Taishet, west of Baikal, to Sovetskaya Gavan on the Sea of Japan. Construction has been completed from Taishet to Bratsk. At the eastern end, a line from Komsomolsk to Sovetskaya Gavan was completed in 1946. Westward from Komsomolsk the line has been built as far as Duki. Since the line is to extend through the territory north of Lake Baikal, there is little present economic justification for it. The significance of the completed Far Eastern section lies in the utilization of a new Soviet port, Sovetskaya Gavan, with through rail facilities to the West by way of Komsomolsk and the Trans-Siberian.

(b) A connection between the BAM and the Trans-Siberian, running from Izvestkovaya Station to Komsomolsk and by-passing the city of Khabarovsk, is near completion. This line has both economic and military justification.

(c) An alternate route between Irkutsk and Kultuk by-passes the critical railroad construction around Lake Baikal and reduces dependence upon this extremely vulnerable stretch of the Trans-Siberian.

(d) The South Siberian Railroad, which is to run from Kuibyshev on the Volga to Taishet on the Trans-Siberian, is under construction, but will probably not be completed before 1951. The section Kuibyshev-Ufa-Magnitogorsk-Kartaly-Akmolinsk is in operation; the section Akmolinsk-Pavlodar is under construction; the section Pavlodar-Kulunda is in operation; and the section Kulunda-Barnaul-Stalinsk-Abakan-Taishet is under construction. This line has both economic and military justification.

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(e) Three railroad lines which parallel the water transport routes for oil from the Caucasus have been completed;

1. Kizlyar-Astrakhan, which permits through rail transport from Grozni to Stalingrad;

2. Gagry-Sukhumi, which furnishes another alternate through route from Tbilisi to Rostov;

3. Astrakhan-Guriey, to which a number of unconfirmed reports refer.

(f) A railroad line running parallel to the Finnish-U.S.S.R. border and terminating at Salla is under construction. It will parallel the Petrozavodsk-Murmansk railroad which also connects with the Finnish system at Salla. When the Finnish railroad west of Salla is restored, this route will have great military significance. There is very little economic justification for it.

(g) A railroad line between Sosva and Alpaevsk in the Urals by-passes the junctions of Sverdlovsk and Nizhni-Tagil and provides another north-south parallel route from Nadezhdinsk to Chelyabinsk. This line has recently been completed. It has both economic and military justification.

(h) It should be noted that the completed double-tracking of the Trans-Siberian Railroad has in some places the effect of a parallel line; the tracks are sometimes a considerable distance apart.

(i) Reports indicate that there are three concentric belt lines which encircle the city of Moscow, and connect all the radial lines entering the city. The inner belt line has a radius of 12 kilometers from the center of the city, the middle belt 20 to 40 kilometers, and the third belt, not confirmed as complete, has a radius of 125 to 300 kilometers. While these belt lines have great economic

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4. a. (1) (1) (cont'd)

justification, their existence greatly reduces the vulnerability of the Moscow rail hub, and allows almost limitless alternate routings in order to bypass Moscow.

(2) Construction in the Satellites

There is a considerable amount of railroad construction now in progress in the satellites. The bulk of it is concerned with building entirely new through routes, but some of it consists of joining branch lines to form alternates to existing through routes. There is considerable by-pass construction.

Most of the construction projects have economic justification, but their completion will provide the U.S.S.R. with greater military rail capacity and a larger number of alternate through routes to Scandinavia, Western Europe, the Adriatic and the Mediterranean.

Chief examples of parallel or by-pass routes, under construction or recently completed in the satellites, are as follows:

(a) Bulgaria

1. The Lovetch-Troyan railroad, recently completed, is parallel to the Stara Zagora-Ruse railway, and makes an alternate north-south route across the country from the Danube to Plovdiv.

2. Vratsa-Orehovo line, under construction, will make another parallel north-south line across the country, and, when the Gorna Dzhumaya-Kocane line is completed, will connect the Bulgarian Danube and Sofia with Skoplje in southern Yugoslavia and the Greek frontier.

3. Makochevo-Klisura railroad, parallel to the Sofia-Plovdiv line, which will be completed in 1950, will provide an alternate and more direct route from Sofia to the Black Sea ports.

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4. a. (2) (a) 4. A railroad is under construction from Silistra (on the Danube in Rumania) to Samuel (45 miles S.E. of Ruse on the railway to Varna). This line will parallel the line from Varna to Medgidia in Rumania.

(b) Finland

A 19-kilometer railroad line has been completed connecting the lines from Elisenvaara to Savolinna and Lappenranta, just west of the new Finno-Soviet frontier. The new railroad line parallels lines presently inside the U.S.S.R. frontier, and restores rail connection between the two cities within Finnish territory.

(c) Hungary

Restoration of the disused connecting railroad line between Pestszentlorinc and Soroksar on the southern perimeter of Budapest enables traffic from south Hungary to reach rail lines to the east without going through the Ferenc Varos railway yards, and allows some shipments to the east from Czepe Island to by-pass Budapest.

(d) Poland

1. The Tomaszow-Mazowiecki-Radom railroad line, completed in December 1948, provides a by-pass around Warsaw for traffic from Lodz and the west, to both Lublin and Brest-Litovsk.

2. The recently restored Breslau-Wolow line provides an alternate route parallel to the important Breslau-Frankfurt/Oder line.

3. Construction has been started on:

(a) The Lodz-Konskie-Kelce-Busko-Tarnow line, to parallel the Warsaw-Lublin line;

(b) The Tarnobrzeg-Zawiercie line, parallel to the Katowice-Lwow line.

These lines will give outlet to the new industrial center in the Kielce area.

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4. The Trzebiatow (Treptow)-Kolobrzeg (Kolberg) railroad line has been reconstructed giving an alternate route along the Baltic coast parallel to the Stettin-Danzig line.

(e) Rumania

1. Both major rail arteries in Rumania have been paralleled:

(a) Completion of the Bucharest-Faurei-Tecuci line will have, if it has not already, provided a parallel alternate line between Bucharest and the Soviet frontier, via either Galatz or Iasi;

(b) Completion of the Bucharest-Rosiorii-Craiova line has provided an alternate, parallel line, much more direct, to western Rumania and the Yugoslav frontier.

2. Completion of the Bumbesti-Livizeni, Deva-Brad, and Vascau-Varfurile sections have provided an alternate rail route roughly parallel to the Brasov-Sighisoara line, from Bucharest to the Hungarian frontier at either Arad, Oradea, or Satu Mare.

(f) Yugoslavia

1. The Kraljevo-Uzice narrow-gauge railroad line is being paralleled with a standard-gauge line.

2. A by-pass railroad line is under construction around the Free Territory of Trieste from Gorizia to Divaca on the line to Fiume and Ljubljana.

3. The Tuzla-Broka (90 km) standard-gauge line has been completed, parallel the line described in 4 below:

4. The Sabac-Koviljaca narrow-gauge line, is now being converted to standard-gauge, and extended to Zvornik.

5. The Samac-Sarajevo standard-gauge "Youth Railroad," 150 miles long, has been completed, parallel to both the above lines, and giving Sarajevo standard-gauge rail connection northward to the Sava River and to the main-line Belgrade-Zagreb railroad.

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6. The Banja Luka-Doboj standard-gauge line now under construction, will eventually extend the line from Bosanski Novi to Tuzla and Zvornik, joining the line in 4 above, providing an alternate route 200 miles long, parallel to the Belgrade-Zagreb line.

7. The Bihac-Knin line is completed, providing an alternate standard-gauge connection between Split on the Adriatic and Zagreb in the Sava valley.

8. The Sarajevo-Mostar-Ploca line is being converted to standard-gauge, and will have the effect of extending the line from Samac (see 5 above) to the Adriatic, parallel the Zagreb-Split line, and provide the most direct route between the Soviet Union and the Adriatic coast.

9. The Pristina-Kursumlja line in Serbia is under construction and a line is projected from Pec to Titograd. These two lines will give another direct connection from the Balkan interior to the Adriatic.

10. A narrow gauge line is under construction between Niksic and Titograd. Preliminary work is also underway on an addition to this line to connect it to Belgrade via Valjevo and Uzice. This line will roughly parallel the Sarajevo-Ploca line, and would give a second overland connection, of lower capacity, from Belgrade to the southern Adriatic coast.

b. Highway transport

The Soviet road network is largely undeveloped and existing roads are poor by western standards, and are not at present utilized for large-scale long distance hauling. There is no evidence that highway construction is being undertaken in the U.S.S.R. for the purpose of parallelling the present transportation or by-passing existing vulnerable points.

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The extensive use of rivers and artificial waterways to supplement other inland transportation facilities remains subject to seasonal limitations and to the geographic fact that the natural waterways tend to cross rather than parallel existing trans-continental routes. The climate also limits the use of the Arctic passage from West to East to a few months in the year.

5. UNDERGROUND CONSTRUCTION

Underground facilities are being developed for personnel shelters, military installations, and industrial establishments. Such construction seems to be widely scattered throughout the U.S.S.R. and, while it is not confined to the border areas, emphasis on these regions may be assumed. Although it is progressing steadily, it is doubtful if underground construction is taking precedence over other types of vitally needed building. New construction probably reflects the need for maximum protection against atomic as well as conventional air attack. Certain known underground installations for oil and armunition storage have been developed for reasons of general safety, unrelated to defense against air attack.

a. Personnel shelters

Bomb-proof shelters were extensively built during World War II and standard characteristics and technics of construction were developed. Modified as the use of the atomic bomb might dictate, these technics would probably be used in the future. There is, however, no present report of new shelters under construction.

b. Military installations

Aircraft hangars and command posts are known to exist underground at some of the important air force installations.

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~~TOP SECRET~~~~TOP SECRET~~4. c. Industrial establishments

Underground industrial construction, as far as can be determined, is not being limited to specific industries, but some of all critical types have been placed underground wholly or in part. The information available reveals that the present underground installations include ammunition plants, shell-loading plants, and airplane, submarine, and tank factories. A very large plant, described as housing the production of electronic and related equipment, has been reported. Extensive underground installations are being developed along the Estonian coast, and covered shipbuilding sites have been reported in Leningrad shipyards. Shelters for submarines and small naval craft are being developed at Balaklava and near Feodosia in the Crimea.

6. USE OF CAMOUFLAGE

Camouflage was widely used in the U.S.S.R. during World War II, and would probably be used again. Realizing that pattern painting is outdated, the Russian Forces, noted for their ingenuity and excellence in this field, will probably be able to develop up-to-date technics. However, there are no indications that such technics have been developed, and there has been no effort to remove wartime camouflage on many installations. One exception is the report that the runways and approaches to a large underground airfield are camouflaged with full-grown trees, so boxed or bagged that they can be pulled aside for the period of actual runway use, and then immediately replaced.

7. THE PRACTICE OF DECEPTION IN REGARD TO INDUSTRIAL CAPACITY AND STOCKPILES

Because of the general practice of security respecting Soviet production, capacity, and stockpiling, it is difficult to assess the measure of deception that might be practiced.

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7. THE PRACTICE OF DECEPTION IN REGARD TO INDUSTRIAL CAPACITY
AND STOCKPILES (cont'd)

There is evidence of deception being practiced, in many instances for propaganda purposes, and to confuse foreign intelligence. On many aspects of production and capacity, particularly military, and on stockpiling there is extremely little official information.

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~~TOP SECRET~~~~TOP SECRET~~IVESTIMATE OF THE PSYCHOLOGICAL EFFECT OF ATOMIC BOMBING
ON THE SOVIET WILL TO WAGE WAR1. Limitations on the Problem

Any estimate must remain speculative and hypothetical. The sole precedent - atomic bombing of two Japanese cities - does not furnish a particularly good analogy both because of differences in race and government, and because Japan, at the time of the atomic attacks, was already far on the road to surrender. The concentrated non-atomic bombardments of London and Berlin in the late war, and the defense of Stalingrad are instances in which attacks of destruction and terror strengthened rather than weakened morale; but the analogy is somewhat vitiated not only by the greater devastation and terrible after-effects of the atomic bomb, but further by peculiar circumstances surrounding the earlier instances which might not be repeated. Furthermore any estimate must remain contingent upon who starts the war and the nature of atomic bomb attacks. The panic observed in the U.S.S.R., particularly in the Ukraine, after the initial German successes in 1941 might be repeated and might be heightened in case of an immediate attack following a declaration of war. How long such panic would continue, whether it would develop into despair and a desire for relief through surrender; or whether it could be used to make firm the will of an otherwise wavering disaffected people, would depend on hypothetical circumstances, some of which are discussed below.

2. Underlying Conditions of Soviet Psychology Bearing on the Problem.

At the present time, the Soviet citizen may be described in general terms of unhappiness and disaffection so far as standards of living are concerned; disillusionment in the

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2. Underlying Conditions of Soviet Psychology Bearing on the Problem (cont'd)

promised "Communist Utopia" as contrasted with the actual, and obedience to the Government, not through any conviction of Marxist truth but through a habit of obedience and inability to resist. For every fanatical Party member to whom Communism is a religion for which he would gladly give his life, there are numbers of Russian workers and peasants to whom the present regime is merely another form of tyranny.

Thus the mass of the Soviet people can hardly support with enthusiasm any schemes of conquest or establishment of world Communism that the Kremlin and the Party may foster.

An atomic attack upon Russian soil might be successfully presented to them as, in effect, another invasion which must be repelled with all the determination demonstrated in 1812 and 1942. Much would thus depend on the interpretation put on the attack by the Russian people.

Other factors would be: (a) whether or not the present illusion inculcated by the Government that the atomic bomb is not particularly effective and that Soviet scientists have developed atomic weapons and means of defense against them, would result in disillusionment and despair when the truth was known, and would thus contribute to weakened morale; (b) whether or not centralized Soviet communications and control could be destroyed to such an extent that Soviet leaders could no longer keep the populace in line; (c) whether or not the U.S. could follow up an atomic attack with successful psychological warfare.

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3. Soviet Efforts to Minimize the Psychological Effects of Atomic Warfare and to Encourage an Optimistic View of Defense Measures

The Soviet citizen is exposed to the subject in newspaper articles, radio broadcasts, lectures, and even in children's plays, but he has little notion of the effect of atomic explosions. He has access to no comprehensive reports on the results of the bombings of Hiroshima and Nagasaki or the Bikini tests. He can only speculate as to the effectiveness of the bomb, from the violence of demands for prohibition of atomic warfare made by Soviet representatives at meetings of the United Nations, from general rumors of the bomb's potentialities, and from Soviet propaganda statements regarding capitalist "viciousness" in concentrating on the military rather than on the peacetime use of atomic energy.

The effects of the bomb at Hiroshima and Nagasaki were belittled by Professor A.F. Kapustinski, a Soviet physicist, who said in a public lecture that the main damage resulted from uncontrolled fires started by the bomb. In a Red Star article Major General Zubkov compared the Anglo-American theory of atomic warfare to the Nazi theory of the Blitzkrieg and the use of small armies, labelling both theories as useless and groundless.

Although the late Andrei Zhdanov in September 1947 alluded to the "temporary American monopoly on the atomic weapon," two months later, V.M. Molotov asserted that the secret of the atom bomb had "long ceased to exist." Similarly, Komsomol Pravda of March 24, 1948 maintained that "not a single important discovery in the field of the atomic nucleus and generally of the parts of the atom has been made without the participation of Soviet scientists." Atomic research has been named among the research topics for the Soviet scientific research in recent years and references to progress in this field have been published in the Soviet press.

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3. Soviet Efforts to Minimize the Psychological Effects of Atomic Warfare and to Encourage an Optimistic View of Defense Measures (cont'd)

Lt. Gen. Blagonravov, head of the U.S.S.R. Artillery Academy, said in a radio broadcast that Russian artillery would be a major factor in an atomic war and that "artillery has always found means of countering enemy inventions." Rumors of Soviet weapons more potent than the atomic bomb have also been circulated and may minimize some fears of an atomic attack.

4. Destruction of Central Control

Although crippling the communication system would have a profound effect upon the ability of the Kremlin to hold the populace in line, if preparations had been made for dispersion of central control, security could be maintained, at least temporarily, through the security police which could control disorganized and untrained opposition. If it became impossible to restore communications, Party leaders might lose their hold over the security police and thus fail to control the state in the interests of the present regime.

5. Nature of Psychological Warfare Needed to Parallel Atomic Warfare

It is highly likely that the Kremlin, in case it had decided upon war, would take special and stringent measures to prevent western propaganda from reaching the people through the collection of radios and other means of communication. Assuming, however, that means could be found of communicating with the Russian people in case of an atomic attack, it is believed that most serious study should be given to the questions of (a) the extent to which atomic bombing might be exploited by the Kremlin to unite the Soviet people "in defense of the motherland," and (b) the methods by which the U.S., through psychological means, might successfully counteract such exploitation.

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... that the U.S. effort was not aimed at them but at their Communist masters, and that moral blame for atomic destruction must be borne by Soviet leaders. In short, the war, whose end would be described as liberation of the Soviet people, would have to be presented as a struggle brought on by Communist aggression.

Advance warning to the people might prove of tremendous psychological advantage. For example, if instructions could be conveyed to the people in the target areas that atomic attacks on industrial centers were imminent and that they must be evacuated immediately, Soviet authorities would face

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5. Nature of Psychological Warfare Needed to Parallel Atomic Warfare (cont'd)

In this connection, account must be taken of the tendency of the Russian people, so often noted in the past, to fight heroically for their homeland however despotic and unpopular their government. Undoubtedly this tendency is one which the Soviet leaders will heavily rely upon, and make all possible efforts to encourage. Soviet propaganda has already been laying the necessary groundwork, and undoubtedly an atomic attack by the U.S. would be the signal for an all-out Soviet campaign in which it would be contended that the attack was proof of all that Soviet propaganda had been maintaining about U.S. aggression. Such Soviet propaganda would undoubtedly have some success, and in the absence of sound counter-measures, it might gain for the Soviet leaders a degree of popular support perhaps equaling or even surpassing that which existed at the time of the German occupation.

If the danger were to be avoided, some means would have to be found to reach the Soviet people and to persuade them that the U.S. effort was not aimed at them but at their Communist masters, and that moral blame for atomic destruction must be borne by Soviet leaders. In short, the war, whose end would be described as liberation of the Soviet people, would have to be presented as a struggle brought on by Communist aggression.

Advance warning to the people might prove of tremendous psychological advantage. For example, if instructions could be conveyed to the people in the target areas that atomic attacks on industrial centers were imminent and that they must be evacuated immediately, Soviet authorities would face

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5. Nature of Psychological Warfare Needed to Parallel Atomic Warfare (cont'd)

a critical dilemma. Should they permit the evacuation, Soviet industry would be paralyzed, and Soviet morale might suffer irreparably. Should they on the other hand forcefully prevent evacuation, and should the attack be in fact carried out, the resulting popular resentment would be directed against the Soviet Government. After several such incidents, in fact, the people might turn against the Soviet security forces and engage in large-scale civil revolt.

6. Effects in the Satellite Countries

It is probable that deterioration in the will to fight would be even greater among the satellites because their disaffection is much deeper and more widespread and because the mass of their people have even less reason than the Russians to follow Kremlin leadership into destructive warfare.

7. Conclusions

While the whole question must remain exceptionally speculative, it may be tentatively concluded that:

a. Successful and sustained atomic attack on the U.S.S.R. would seriously disrupt the civil and military control system. This disruption, plus the fear of future attacks, would create a serious demoralization of the populace and might result in panic in the affected areas.

b. Because the people have been kept in ignorance of the truth regarding atomic attacks and the power of the Soviet Government to prevent them, psychological warfare, if means could be found of using it, would be particularly effective.

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7. Conclusions (cont'd)

c. Soviet demoralization from atomic attacks and psychological warfare would not necessarily lead to collapse of the regime unless Western Powers exploited this opportunity by conventional military means,

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TO SUCCEED THE PRESENT REGIME1. General

In evaluating the groups of dissidents active in the Soviet Union today, a careful distinction must be drawn between underground and overt resistance groups. An underground organization is by definition a secret organization working within the framework of society, whereas an overt resistance group is composed of outlaws, living outside the pale of Soviet society.

2. Overt Resistance Groups

Overt resistance groups have never seriously threatened the Soviet Government's control of any large area, although they do cause disruption of normal activity in various districts throughout the Soviet Union. The strongest of these groups are in the Ukraine and the Baltic republics. The existence of nationalist guerrillas in the Ukraine and in Lithuania has been acknowledged on several recent occasions in the Soviet press. Armed anti-government activities during the postwar period have also been reported in Latvia, Estonia, Belorussia, and Kazakhstan, as well as in the Urals, Central Asia, and the Far East. Other manifestations of discontent have recently been reported from Georgia, but most of these reports appear to refer to isolated incidents or small groups. These operations have been seriously curtailed by MVD counter-measures which drive the partisans into increasingly smaller areas where they are contained or liquidated.

The composition of these bands is heterogeneous, with the membership including many escaped PW's, Soviet Army

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2. Overt Resistance Groups (cont'd)

deserters, criminals, and political outlaws, all of whom are generally more concerned with survival than with political aims. Militarily impotent in their isolation and politically uninterested, these groups are too small and too poorly organized to assume control of their own national area, let alone the government of the entire country. They would represent a liability rather than an asset in the establishment of a new Russian Government after a collapse of the Soviet system.

3. Underground

On the basis of available evidence, there is no existing underground organization in the U.S.S.R. None can be expected to develop in a society which is so permeated with agents of the secret police that state security is rendered virtually absolute. Consequently there is no chance for grooming leaders, increasing membership, or building up the armed strength necessary for the formation of an effective underground.

However, it is possible that in the event of war such an underground organization will come into being after the Soviet war machine has suffered serious reversals and the efficiency of the secret police has been impaired. Only then would substantial segments of the population become available for an opposition army, in which a potential leadership would gradually be developed from deserting bureaucrats, trained specialists, and members of the intelligentsia. Such an organization could provide the nucleus of a new government capable of assuming control in the event of collapse of the existing Soviet regime.

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TABLE A-1

CRUDE STEELEstimated Current Annual Production in Thousands of Metric Tons

| | |
|-------------------------------------|---------------|
| USSR | <u>18,000</u> |
| Satellites | |
| Albania | none |
| Austria (Soviet Zone) | none |
| Bulgaria | none |
| Czechoslovakia | 2,580 |
| Finland | 87 |
| Germany (Soviet Zone) | 225 |
| Hungary | 660 |
| Poland | 1,845 |
| Rumania | 183 |
| Yugoslavia | <u>235</u> |
| Total Satellites | <u>5,815</u> |
| Total USSR and Satellites | <u>23,815</u> |
| Non-Soviet Continental Europe | |
| Austria (West Zones) | 660 |
| Benelux | 7,560 |
| Denmark | 36 |
| France | 7,560 |
| Germany (West Zones) | 9,144 |
| Greece | 24 |
| Italy | 2,180 |
| Norway | 60 |
| Portugal | none |
| Spain | 660 |
| Sweden | 1,320 |
| Switzerland | <u>120</u> |
| Total Non-Soviet Continental Europe | <u>29,326</u> |
| Total Continental Europe & USSR | <u>53,141</u> |

Note: Present production and capacity of the USSR and Satellites, for all practical purposes, may be assumed to be identical. In case of emergency, none of these countries could materially increase steel production. Of the Benelux production, Luxembourg produces 2,880,000 metric tons. The figure shown for Germany (West Zones) includes the production of Saar. The current capacity of Germany (West Zones) is 14 million metric tons, assuming no dismantling since 1 January 1949.

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TABLE A-2

PETROLEUMEstimated Current Annual Production in Thousands of Metric Tons

| | <u>Crude Petroleum</u> | <u>Refined Products</u> | <u>Combat Aviation Gasoline</u> |
|--------------------------------------|----------------------------|-----------------------------|---|
| USSR | <u>22,150</u> | <u>22,613</u> | <u>973^{1/}</u> |
| Satellites | | | |
| Albania | 55 | -- | -- |
| Austria (Soviet Zone) | 910 | 770 | -- |
| Bulgaria | -- | -- | -- |
| Czechoslovakia | 40 | 350 | 2 |
| Finland | -- | -- | -- |
| Germany (Soviet Zone) | -- | 600 | 240 |
| Hungary | 460 | 400 | -- |
| Poland | 135 | 220 | -- |
| Rumania | 4,450 | 4,000 | 70 |
| Yugoslavia | <u>65</u> | <u>200</u> | <u>--</u> |
| Total Satellites | <u>6,115</u> | <u>6,540</u> | <u>312^{2/}</u> |
| Total USSR and Satellites | 38,265 | 36,153 | 1,285 |
| Non-Soviet Continental Europe | | | |
| Austria (West Zones) | none | none | none |
| Benelux | 492.8 | 1,184.2 | none |
| Denmark | none | 21.5 | none |
| France | 52 | 6,717 | negligible |
| Germany (West Zones) | 619.1 | 1,684.5 | none |
| Greece | none | none | none |
| Italy | 5.2 | 2,444.8 | none |
| Norway | none | none | none |
| Portugal | none | 243.1 | none |
| Spain | none | 25.2 | none |
| Sweden | none | 1,014 | none |
| Switzerland | <u>none</u> | <u>none</u> | <u>none</u> |
| Total Non-Soviet Cont. Europe | <u>1,169.1</u> | <u>13,334.3</u> | <u>negligible</u> |
| Total Continental Europe and USSR | <u>39,434.1</u> | <u>49,487.3</u> | <u>1,285</u> |

^{1/} Approximately one-quarter 100-octane and three-quarters 95 octane.
^{2/} 90 octane.

Note: Total Soviet refined products include synthetic production of 1 million metric tons. The Soviet aviation gasoline figure of 2.5 million tons, however, does not include possible avgas production by synthetic processes. Yugoslav avgas production though unknown is estimated to be less than the other producing Satellites. Soviet excess refining capacity equals 11 million metric tons of crude; Satellite excess refining capacity equals 5 million metric tons of crude.

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TABLE A-3

Estimated Availability of Gasoline, Kerosene and
Lubricating Oils Within the USSR and Its Satellites

| <u>USSR</u> | | <u>THOUSANDS OF METRIC TONS</u> | | | |
|---|----------------------------------|---------------------------------|--------------|--|--|
| <u>Source</u> | <u>Indigenous Production</u> | <u>Synthetic</u> | <u>Total</u> | <u>Minimum Civilian Requirements</u> | |
| Aviation Gasoline | 2500 | | 2500 | | |
| Motor Gasoline | 5500 | 500 | 6000 | 4700 | |
| Kerosene, Diesel, Tractor and Jet Fuel | 6000 | 200 | 6200 | 4600 | |
| Lubricating Oils | <u>2000</u> | <u>200</u> | <u>2200</u> | <u>1300</u> | |
| Total USSR | <u>16000</u> | <u>900</u> | <u>16900</u> | <u>10600</u> | |
| Satellites * | | | | | |
| Aviation Gasoline | 312 | | | 10 | |
| Motor Gasoline | 1710 | | | 310 | |
| Kerosene, Diesel, Tractor and Jet Fuel | 1240 | | | 640 | |
| Lubricating Oils | <u>324</u> | | | <u>130</u> | |
| Total Satellites | 3586 | | | 1090 | |

* In addition to the above the Satellites produce approximately one million metric tons of gas oil. This product is a potential source of gasoline by catalytic cracking, and it is known that between 300 and 400 thousand tons are normally exported to the USSR. It is presumed that this gas oil is imported for cracking stock, and if this operation continues under war conditions, there would be available to the USSR about 200,000 tons of gasoline from this source not reflected in the upper portion of the above table.

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TABLE A-4

REFINED PETROLEUM PRODUCTS

Estimated Current Annual Satellite Production, by Products, in Thousands of Metric Tons

| | Total | Aircraft Gas | Motor Gas | Kerosene | Gas & Diesel Oil | Fuel Oil | Lubricants | Other |
|------------------|------------|--------------|------------|----------|------------------|----------|------------|----------|
| | % of Total | Quantity | % of Total | Quantity | % of Total | Quantity | % of Total | Quantity |
| Albania | -- | -- | -- | -- | -- | -- | -- | -- |
| Austria (Soviet) | 770 | -- | 39 | 5 | 77 | 10 | 62 | 8 |
| Bulgaria | -- | -- | -- | -- | -- | -- | -- | -- |
| Czechoslovakia | 350 | 2 | 128 | 36 | 47 | 13 | 32 | 9 |
| Finland | -- | -- | -- | -- | -- | -- | -- | -- |
| Germany (Soviet) | 600 | 240 | 40 | 130 | 22 | -- | 50 | 8 |
| Hungary | 400 | -- | -- | 133 | 33 | 88 | 19 | 3 |
| Poland | 220 | -- | -- | 60 | 27 | 44 | 42 | 24 |
| Rumania | 4,000 | 70 | 2 | 1,160 | 29 | 600 | 32 | 50 |
| Yugoslavia | 200 | -- | -- | 60 | 30 | 40 | 10 | 10 |
| Total | 6,540 | 312 | 5 | 1,710 | 26 | 895 | 28 | 162 |
| | | | | | 1,312 | 20 | 324 | 5 |
| | | | | | 1,524 | 28 | | 2 |

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TABLE A-5
AVIATION GASOLINE PRODUCTION, USSR
(Thousands of metric tons per year)

| <u>Regions</u> | <u>Cracking Capacity (input)</u> | <u>High-Octane 1/ Production (95-100+ Octane)</u> | <u>Other Avgas2/ Production (75-85 Octane)</u> | <u>TOTAL</u> |
|------------------------------|--|---|--|--------------|
| SCUTHEAST | 3,119 | 300 | 380 | 680 |
| TRANSCAUCASUS | 3,622 | --- | 440 | 440 |
| VOLGA | 2,532 | 250 | 307 | 557 |
| CENTRAL INDUSTRIAL | 699 | --- | 85 | 085 |
| URALS | 713 | 289 | 87 | 376 |
| KAZAKHSTAN & CENTRAL ASIA | <u>1,657</u> | <u>134</u> | <u>202</u> | <u>336</u> |
| | 12,342 | 973 | 1,501 | 2,474 |

1/ Based on established plant installations capable of producing high-octane combat aviation fuel of 95-100+ octane rating.

2/ Based on estimate of fuel produced by thermal cracking including polymerization and alkylation and selected fractionation of both cracked and selected straight-run distillates and USAF consumption estimates of average USSR front-line Air Force operations during World War II. Quality (75-85 octane) estimates probably suitable for transport and low-flying ground support and attack confirmed in "USSR Technical Standards For Petroleum Products," Glavneftesnab, 1946, and other sources.

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TABLE A-6

CHEMICALS*

Estimated Current Annual Production in Thousands of Metric Tons

| | <u>Sulfuric Acid</u> | <u>Nitrogen (N₂)</u> | <u>Calcium Carbide</u> |
|---------------------------------|----------------------|---------------------------------|------------------------|
| USSR | <u>4,000</u> | <u>630</u> | <u>263</u> |
| Satellites | | | |
| Albania | negligible | negligible | none |
| Austria (Soviet Zone) | unknown | unknown | none |
| Bulgaria | negligible | unknown | negligible |
| Czechoslovakia | 215 | 30 | 15 |
| Finland | 30 | negligible | 10 |
| Germany (Soviet Zone) | 170 | 150 | 40 |
| Hungary | 60 | unknown | 2 |
| Poland | 190 | 77 | 165 |
| Rumania | 40 | unknown | 16 |
| Yugoslavia | <u>50</u> | <u>unknown</u> | <u>50</u> |
| Total Satellites | <u>755</u> | <u>257</u> | <u>298</u> |
| Total USSR and Satellites | <u>4,755</u> | <u>887</u> | <u>561</u> |
| Non-Soviet Continental Europe | | | |
| Austria (West Zones) | none | 48 | 8 |
| Benelux | 1,525 | 253 | 42 |
| Denmark | 200 | none | none |
| France | 1,266 | 195 | 189 |
| Germany (West Zones) | 813 | 301 | 414 |
| Greece | negligible | negligible | none |
| Italy | 800 | 150 | 113 |
| Norway | 200 | 75 | 63 |
| Portugal | 170 | none | none |
| Spain | 292 | 4 | 10 |
| Sweden | 167 | 19 | 30 |
| Switzerland | <u>unknown</u> | <u>16</u> | <u>6</u> |
| Total Non-Soviet Cont. Europe | <u>5,433</u> | <u>1,061</u> | <u>875</u> |
| Total Continental Europe & USSR | <u>10,188</u> | <u>1,948</u> | <u>1,436</u> |

Note: Of the estimated 4 million metric tons of sulfuric acid produced in the USSR, one half the production is estimated to be strong acid that can be used for industrial and military purposes; the balance is weak or chamber acid produced for the manufacture of fertilizers, superphosphate, and ammonium sulfate.

Satellite production of sulfuric acid and nitrogen, although appreciable, is not significant for military purposes. Likewise much of the sulfuric acid produced on the rest of the Continent is produced for use in the manufacture of fertilizers and is not of high enough strength for the manufacture of explosives.

Calcium Carbide: The base raw material for acetylene, essential in all steel fabricating plants for cutting and welding. Acetylene is also the base for a large number of chemicals, and is a base ingredient for Sovprene and other synthetic rubbers. One case where the Satellite production may help the Soviet war effort.

*Where Satellite chemical production is marked "unknown", it is known to be insignificant for military purposes.

TABLE A-7

CHEMICALSEstimated Current Annual Production in Thousands of Metric Tons

| | <u>Soda Ash</u> | <u>Caustic Soda</u> | <u>Chlorine</u> |
|---------------------------------|-----------------|---------------------|-----------------|
| USSR | <u>241</u> | <u>416</u> | <u>209</u> |
| Satellites | | | |
| Albania | none | negligible | negligible |
| Austria (Soviet Zone) | unknown | unknown | unknown |
| Bulgaria | negligible | negligible | negligible |
| Czechoslovakia | 101 | 38 | 15 |
| Finland | none | 15 | 4.5 |
| Germany (Soviet Zone) | 94 | 87 | 30 |
| Hungary | none | 8 | negligible |
| Poland | 100 | 165 | unknown |
| Rumania | 20 | 16 | negligible |
| Yugoslavia | <u>40</u> | <u>15</u> | <u>2</u> |
| Total Satellites | <u>355</u> | <u>344</u> | <u>51.5</u> |
| Total USSR and Satellites | <u>596</u> | <u>760</u> | <u>260.5</u> |
| Non-Soviet Continental Europe | | | |
| Austria (West Zones) | 72 | 11 | 6 |
| Benelux | 90 | 37.6 | 27.4 |
| Denmark | none | 0.4 | 0.3 |
| France | 720 | 194 | 73 |
| Germany (West Zones) | 440 | 216 | 135 |
| Greece | none | negligible | negligible |
| Italy | 170 | 16 | 20 |
| Norway | 21.6 | 4 | 3.5 |
| Portugal | none | negligible | negligible |
| Spain | 63 | 54.5 | 49 |
| Sweden | none | 48 | 43.2 |
| Switzerland | <u>36</u> | <u>30</u> | <u>27</u> |
| Total Non-Soviet Cont. Europe | <u>1,712.6</u> | <u>611.5</u> | <u>384.4</u> |
| Total Continental Europe & USSR | <u>2,308.6</u> | <u>1,371.5</u> | <u>644.9</u> |

Note: Soda Ash: Basic chemical used in manufacture of almost all products. The Soviet and Satellite tonnage is small and may be a real limiting factor in a major war effort. The Satellite production will be used in the producing country.

Chlorine: Necessary for the production of many essential military products. Reasonably limited Soviet and Satellite tonnage and the probable shortage of transportation equipment would show chlorine to be a major limiting factor in a war effort.

Caustic soda: Of the caustic soda produced in the USSR, 229,000 tons are produced by the electrolytic process, and 187,000 by the soda-lime process. Caustic soda is used in some phase of production of almost all civilian and military products.

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TABLE A-8

CHEMICALSEstimated Current Annual Production in Thousands of Metric Tons

| | <u>Methyl Alcohol</u> | <u>Ethyl Alcohol</u> | <u>Benzol</u> |
|---------------------------------|---------------------------|--------------------------|-------------------|
| USSR | <u>115</u> | <u>601</u> | <u>241</u> |
| Satellites | | | |
| Albania | unknown | negligible | none |
| Austria (Soviet Zone) | unknown | unknown | unknown |
| Bulgaria | negligible | negligible | negligible |
| Czechoslovakia | unknown | 80 | 45 |
| Finland | unknown | negligible | negligible |
| Germany (Soviet Zone) | 10 | unknown | unknown |
| Hungary | negligible | 20 | negligible |
| Poland | unknown | 109 | 31 |
| Rumania | 2.0 | 20 | negligible |
| Yugoslavia | <u>2.5</u> | <u>16.3</u> | <u>negligible</u> |
| Total Satellites | <u>14.5</u> | <u>245.3</u> | <u>76</u> |
| Total USSR and Satellites | <u>129.5</u> | <u>846.3</u> | <u>317</u> |
| Non-Soviet Continental Europe | | | |
| Austria (West Zones) | 2.0 | 20.7 | 4.0 |
| Benelux | 11.0 | 46.0 | 49.8 |
| Denmark | negligible | 8.4 | negligible |
| France | 21.0 | 339.0 | 80.9 |
| Germany (West Zones) | 49.0 | unknown | 91.8 |
| Greece | none | negligible | negligible |
| Italy | 1.7 | 20.2 | 7.7 |
| Norway | negligible | 3.9 | unknown |
| Portugal | negligible | negligible | negligible |
| Spain | 2.0 | unknown | 3.0 |
| Sweden | 1.5 | 213 | 4.5 |
| Switzerland | <u>2.0</u> | <u>negligible</u> | <u>none</u> |
| Total Non-Soviet Cont. Europe | <u>90.2</u> | <u>650.8</u> | <u>241.7</u> |
| Total Continental Europe & USSR | <u>219.7</u> | <u>1,468.7</u> | <u>558.7</u> |

Note: Aside from methyl alcohol production in the wood distillation plants, methanol can be produced in the synthetic ammonia plant. It is reasonably simple to modify the equipment. Expansion of methanol means a consequent reduction in ammonia production. Methanol is essential for military operations - as a solvent for the manufacture of formaldehyde, an intermediate for methacrylate resins, the base for RDX, and for anti-freeze materials.

Note: Ethyl alcohol is produced in a large number of well-scattered distilleries. By limiting spirits consumption, USSR can meet her requirements. The fermentation industries of the Satellite can all produce alcohol. USSR should have capacity for a military effort. A large percentage of this tonnage will be used for the production of synthetic rubber.

The USSR has installed by-product recovery units at the large coke oven installations. The apparent Soviet policy is to allow the Satellites to produce as many of the basic and large tonnage chemicals as possible, but to limit or prohibit the production of the "special" chemicals essential to industry and to industrial mobilization.

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TABLE A-9

CHEMICALS

Estimated Current Annual Production in Thousands of Metric Tons

| | <u>Toluol</u> | <u>Tetraethyl Lead</u> |
|---------------------------------|----------------|----------------------------|
| USSR | <u>58.5</u> | <u>3 Plants</u> |
| Satellites | | |
| Albania | 0 | 0 |
| Austria (Soviet Zone) | unknown | 0 |
| Bulgaria | negligible | 0 |
| Czechoslovakia | unknown | unknown |
| Finland | 0 | 0 |
| Germany (Soviet Zone) | unknown | unknown |
| Hungary | unknown | 0 |
| Poland | unknown | unknown |
| Rumania | unknown | 0 |
| Yugoslavia | <u>unknown</u> | <u>0</u> |
| Total Satellites | unknown | unknown |
| Total USSR and Satellites | unknown | unknown |
| Non-Soviet Continental Europe | | |
| Austria (West Zones) | 0.5 | 0 |
| Benelux | 5.9 | 0 |
| Denmark | negligible | 0 |
| France | 9.3 | unknown |
| Germany (West Zones) | 15.1 | 0 |
| Greece | negligible | 0 |
| Italy | 0.9 | negligible |
| Norway | unknown | 0 |
| Portugal | negligible | 0 |
| Spain | 0.5 | 0 |
| Sweden | negligible | 0 |
| Switzerland | <u>0</u> | <u>0</u> |
| Total Non-Soviet Cont. Europe | 32.4 | unknown |
| Total Continental Europe & USSR | | unknown |

Note: Tetraethyl lead is essential for aviation gasoline and for much of the motorized equipment. No data are available on these plants, but it is known that metallic sodium, an essential raw material, is produced in 4 plants in the USSR. The other raw materials are available in required quantities. The USSR can possibly produce sufficient TEL to match her aviation gas requirements.

TABLE A-10

RUBBEREstimated Current Annual Production in Thousands of Metric Tons

| | <u>Synthetic</u> | <u>Natural</u> ** |
|---------------------------------|------------------|-------------------|
| USSR | <u>160</u> | <u>0.8</u> |
| Satellites | | |
| Albania | 0 | 0 |
| Austria (Soviet Zone) | 0 | 0 |
| Bulgaria | Planned * | 0 |
| Czechoslovakia | 0 | 0 |
| Finland | 0 | 0 |
| Germany (Soviet Zone) | 20 | 0 |
| Hungary | 0 | 0 |
| Poland | Planned * | 0 |
| Rumania | Planned * | 0 |
| Yugoslavia | Planned * | 0 |
| Total Satellites | <u>20</u> | <u>0</u> |
| Total USSR and Satellites | <u>180</u> | <u>0.8</u> |
| Non-Soviet Continental Europe | | |
| Austria (West Zones) | 0 | 0 |
| Benelux | 0 | 0 |
| Denmark | 0 | 0 |
| France | 0 | 0 |
| Germany (West Zones) | 0 | 0 |
| Greece | 0 | 0 |
| Italy | 0 | 0 |
| Norway | 0 | 0 |
| Portugal | 0 | 0 |
| Spain | 0 | 0 |
| Sweden | 0 | 0 |
| Switzerland | <u>0</u> | <u>0</u> |
| Total Non-Soviet Cont. Europe | 0 | 0 |
| Total Continental Europe & USSR | <u>180</u> | <u>0.8</u> |

* Production of synthetic rubber is planned in certain Satellite countries, aided by Soviet technical and supervisory assistance. Reports indicate that Bulgaria and Rumania are planning to start synthetic rubber plants. Yugoslavia is stated to have at least two factories under construction, and has been attempting to purchase a plant from Italy. Poland reportedly has two plants under construction with total capacity about 9,000 tons per annum.

** The USSR produces a rubber-like substance from kok-sagyz and other rubber bearing shrubs, but total production from this source is considered negligible. Natural rubber has been imported by USSR from Southeast Asia; total USSR imports in 1948 totalled around 130,000 tons, of which 50-70,000 tons may have been stockpiled. Satellites normally import, mostly from Southeast Asia, the necessary quantities of natural rubber to supply the needs of their rubber fabricating plants.

TABLE A-11

TRUCKS AND BUSESEstimated Current Annual Production in Units

| | |
|---------------------------------|-------------------------------------|
| USSR | <u>275,000</u> ^{1/} |
| Satellites | |
| Albania | 0 ^{1/} 2 ^{2/} |
| Austria | 1,000 ^{1/} 2 ^{2/} |
| Bulgaria | 4 ^{4/} |
| Czechoslovakia | 7,200 ^{1/} |
| Finland | 0 |
| Germany (Soviet Zone) | 3,400 ^{1/} |
| Hungary | 900 ^{1/} |
| Poland | 0 ^{4/} |
| Rumania | 4 ^{4/} |
| Yugoslavia | 4 ^{4/} |
| Total Satellites | <u>12,500</u> ^{2/} |
| Total USSR and Satellites | <u>287,500</u> |
| Non-Soviet Continental Europe | |
| Austria | See ^{3/} |
| Benelux | 2,500 ^{5/} |
| Denmark | 6 ^{6/} |
| France | 81,000 |
| Germany (West Zones) | 45,000 ^{7/} |
| Greece | 0 ^{8/} |
| Italy | 10,000 ^{8/} |
| Norway | 0 |
| Portugal | 0 |
| Spain | 500 ^{9/} |
| Sweden | 7,300 ^{5/} |
| Switzerland | 1,000 ^{2/} |
| Total Non-Soviet Cont. Europe | <u>148,300</u> ^{10/} |
| Total Continental Europe & USSR | <u>435,800</u> |

- Note: 1/ Includes buses. About 1% of USSR production is in buses.
 2/ Production represents capacity.
 3/ Austria, all zones - estimated capacity 9,000
 4/ A small motor vehicle industry has been initiated, but little production is anticipated during 1949.
 5/ Additional production in the form of assembly of imported components by foreign-owned firms as follows: Belgium - approximately 24,650 passenger cars, trucks and buses in 1947; Netherlands a small number in 1947; Sweden - approximately 4,600 trucks and buses in 1947; Switzerland - approximately 2,000 trucks in 1947.
 6/ Some production on a small scale started in 1948. Small production of diesel engines for installations in imported chassis.
 7/ Bizone only
 8/ Estimated capacity 20,000
 9/ Considered a liberal estimate. Capacity estimated at 1,000
 10/ Does not include units assembled from imported parts by foreign-owned firms.

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TABLE A-12

PASSENGER AUTOMOBILESEstimated Current Annual Production in Units

| | |
|---------------------------------|------------------------------|
| USSR | <u>25,000</u> ^{1/} |
| Satellites | |
| Albania | none |
| Austria (Soviet Zone) | negligible |
| Bulgaria | none ^{2/} |
| Czechoslovakia | 20,000 |
| Finland | none |
| Germany (Soviet Zone) | 1,000 |
| Hungary | none |
| Poland | none ^{2/} |
| Rumania | negligible ^{2/} |
| Yugoslavia | none ^{2/} |
| Total Satellites | <u>21,000</u> ^{1/} |
| Total USSR and Satellites | <u>46,000</u> |
| Non-Soviet Continental Europe | |
| Austria (West Zones) | negligible |
| Benelux | negligible ^{2/} |
| Denmark | none |
| France | 145,000 ^{4/} |
| Germany (West Zones) | 50,000 ^{2/} |
| Greece | none |
| Italy | 45,000 |
| Norway | none |
| Portugal | none |
| Spain | negligible |
| Sweden | 2,600 ^{3/} |
| Switzerland | negligible |
| Total Non-Soviet Cont. Europe | <u>242,600</u> ^{6/} |
| Total Continental Europe & USSR | <u>288,600</u> |

- Note: 1/ Production represents capacity.
 2/ Small motor vehicle industry has been initiated, but little or no production anticipated during 1949.
 3/ In addition, production in the form of assembly of imported parts by foreign firms as follows: Belgium (See 5) under trucks and buses; Netherlands approximately 7,000 in 1947; Sweden approximately 7,100 in 1947.
 4/ France produced 180,000 passenger cars in a prewar year, but attainment of that rate at the present time would probably require a reduction in the current rate of truck and bus production.
 5/ Bizones only. Capacity of 170,000 based upon prewar (1936) production rate.
 6/ Does not include units assembled from imported parts by foreign-owned firms.

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TABLE A-13

GUNS, TANKS, AND SELF-PROPELLED GUNSEstimated Current Annual Production in Units

| | <u>Artillery Pieces (75 mm & over)</u> | <u>Tanks</u> | <u>Self-Pro- pelled Gun</u> |
|---------------------------------|--|--------------|---------------------------------|
| USSR | <u>15,000^{1/}</u> | <u>4,200</u> | <u>1,800</u> |
| Satellites | | | |
| Albania | 0 | 0 | 0 |
| Austria (Soviet Zone) | 0 | 0 | 0 |
| Bulgaria | 0 | 0 | 0 |
| Czechoslovakia | 840 | 0 | 120 |
| Finland | 0 | 0 | 0 |
| Germany (Soviet Zone) | 0 | 0 | 0 |
| Hungary | 0 | 0 | 0 |
| Poland | 0 | 0 | 0 |
| Rumania | 0 | 0 | 0 |
| Yugoslavia | 0 | 0 | 0 |
| Total Satellites | <u>840</u> | <u>0</u> | <u>120</u> |
| Total USSR and Satellites | <u>15,840^{1/}</u> | <u>4,200</u> | <u>1,920</u> |
| Non-Soviet Continental Europe | | | |
| Austria (West Zones) | 0 | 0 | 0 |
| Benelux | 0 | 0 | 0 |
| Denmark | 0 | 0 | 0 |
| France | 240 | 60 | 120 |
| Germany (West Zones) | 0 | 0 | 0 |
| Greece | 0 | 0 | 0 |
| Italy | 0 | 0 | 0 |
| Norway | 0 | 0 | 0 |
| Portugal | 0 | 0 | 0 |
| Spain | 180 | 0 | 0 |
| Sweden | 120 | 24 | 60 |
| Switzerland | 48 | 0 | 0 |
| Total Non-Soviet Cont. Europe | <u>588</u> | <u>84</u> | <u>180</u> |
| Total Continental Europe & USSR | <u>16,428^{1/}</u> | <u>4,284</u> | <u>2,100</u> |

Note: ^{1/} Includes 5,000 mortars 82-mm and over.

TABLE A-14

LOCOMOTIVES

Estimated Current Annual Production in Units

| | |
|---------------------------------|---------------------------|
| USSR | <u>1,600</u> |
| Satellites | |
| Albania | none |
| Austria | 401 ^{1/} |
| Bulgaria | none |
| Czechoslovakia | 300 ^{2/} |
| Finland | 30 |
| Germany (Soviet Zone) | 180 |
| Hungary | 195 |
| Poland | 250 |
| Rumania | 703 ^{3/} |
| Yugoslavia | <u>none</u> |
| Total Satellites | <u>1,055</u> |
| Total USSR and Satellites | <u>2,665^{4/}</u> |
| Non-Soviet Continental Europe | |
| Austria | See 1 ^{1/} |
| Benelux | 260 ^{5/} |
| Denmark | 45 |
| France | 350 |
| Germany (West Zones) | none ^{6/} |
| Greece | none |
| Italy | 400 |
| Norway | 15 |
| Portugal | none |
| Spain | 10-12 ^{7/} |
| Sweden | 70 ^{8/} |
| Switzerland | 105 |
| Total Non-Soviet Cont. Europe | <u>1,297^{9/}</u> |
| Total Continental Europe & USSR | <u>3,962</u> |

- Note: 1/ Austria - all zones.
2/ 75% of maximum experienced production during highest month of 1948.
3/ 90% of estimated capacity.
4/ Production is estimated to represent capacity in all countries except Austria, Czechoslovakia, and Rumania. The plant capacity not being used for the production of locomotives is unquestionably being used for production of other types of equipment and can be used for production of armament, tanks and other military vehicles.
5/ 10 in Netherlands, 250 Belgium-Luxembourg. Production capacity of main-line locomotives in Belgium estimated at 300 annually.
6/ Estimated capacity 250.
7/ Estimated capacity 250.
8/ Estimated capacity 200.
9/ Estimated capacity have been shown only when they considerably exceed current production.

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TABLE A-15

FREIGHT CARSEstimated Current Annual Production in Units

| | |
|---------------------------------|-----------------------------|
| USSR | <u>110,000</u> |
| Satellites | |
| Albania | 0 |
| Austria | 1,500 ^{1/} |
| Bulgaria | 0 |
| Czechoslovakia | 16,000 ^{2/} |
| Finland | 1,800 |
| Germany (Soviet Zone) | 1,300 |
| Hungary | 4,000 ^{3/} |
| Poland | 16,000 |
| Rumania | 3,250 |
| Yugoslavia | 500 ^{4/} |
| Total Satellites | <u>44,450</u> |
| Total USSR and Satellites | <u>154,450^{5/}</u> |
| Non-Soviet Continental Europe | |
| Austria | See 1/ |
| Benelux | 19,300 ^{6/} |
| Denmark | 200 |
| France | 14,000 ^{7/} |
| Germany (West Zones) | 21,500 ^{6/} |
| Greece | 0 |
| Italy | 18,000 ^{6/} |
| Norway | 300 ^{6/} |
| Portugal | 0 |
| Spain | 200 ^{6/} |
| Sweden | 1,000 ^{6/} |
| Switzerland | 1,000 ^{6/} |
| Total Non-Soviet Cont. Europe | <u>77,000</u> |
| Total Continental Europe & USSR | <u>231,450</u> |

- Note: 1/ Austria, all zones. Estimated capacity 2,000.
2/ 90% of maximum experienced production.
3/ 89% of maximum experienced production during highest month of 1948.
4/ 30% of maximum experienced production.
5/ Production is estimated to represent capacity in all countries except Austria, Czechoslovakia, Hungary, and Yugoslavia.
6/ Estimated capacity: Belgium-Luxembourg 25-30,000; Germany (Western Zones) 45,000; Italy 25,000; Norway 400; Spain 6000; Sweden 2,500; Switzerland 2,500.
7/ Consists largely of assembly of imported components and semi-finished parts.

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TABLE A-16

RAILSEstimated Current Annual Production in Metric Tons

| | |
|---------------------------------|-----------------------------|
| USSR | <u>900,000</u> |
| Satellites | |
| Albania | none |
| Austria (Soviet Zone) | unknown |
| Bulgaria | none |
| Czechoslovakia | unknown |
| Finland | 12,000 |
| Germany (Soviet Zone) | negligible |
| Hungary | 47,000 |
| Poland | unknown |
| Rumania | unknown |
| Yugoslavia | <u>none</u> |
| Total Satellites | <u>unknown</u> |
| Total USSR and Satellites | <u>unknown^{1/}</u> |
| Non-Soviet Continental Europe | |
| Austria (West Zones) | unknown |
| Benelux | unknown |
| Denmark | unknown |
| France | unknown |
| Germany (West Zones) | 320,000 ^{2/} |
| Greece | none |
| Italy | unknown |
| Norway | none |
| Portugal | none |
| Spain | unknown |
| Sweden | 30-40,000 |
| Switzerland | <u>unknown</u> |
| Total Non-Soviet Cont. Europe | <u>unknown^{2/}</u> |
| Total Continental Europe & USSR | <u>unknown</u> |

Note: ^{1/} Total rail production is unknown, but it is estimated to be below requirements of plans for rail replacement and railroad construction and double-tracking.

^{2/} Estimate only.

^{3/} In general, Western Europe possesses adequate capacity for rail production to meet its requirement, but production is dependent upon allocation of steel, which to date has been generally inadequate.

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TABLE A-17

ELECTRICAL EQUIPMENT^{1/}

Estimated Current Annual Production in Kilowatts

| | |
|---------------------------------|----------------------------------|
| USSR | <u>2,000,000</u> |
| Satellites | |
| Albania | negligible |
| Austria (Soviet Zone) | unknown ^{2/} |
| Bulgaria | negligible |
| Czechoslovakia | unknown ^{2/} |
| Finland | unknown ^{2/} |
| Germany (Soviet Zone) | unknown ^{2/} |
| Hungary | unknown ^{2/} |
| Poland | unknown |
| Rumania | negligible |
| Yugoslavia | <u>negligible</u> |
| Total Satellites | <u>unknown^{2/}</u> |
| Total USSR and Satellites | 2,000,000 (excluding Satellites) |
| Non-Soviet Continental Europe | |
| Austria (West Zones) | unknown |
| Benelux | unknown |
| Denmark | unknown |
| France | unknown |
| Germany (West Zones) | unknown |
| Greece | unknown |
| Italy | unknown |
| Norway | unknown |
| Portugal | unknown |
| Spain | unknown |
| Sweden | unknown |
| Switzerland | <u>unknown</u> |
| Total Non-Soviet Cont. Europe | <u>unknown</u> |
| Total Continental Europe & USSR | <u>unknown</u> |

- 1/ Electrical equipment means "heavy" generating plant equipment, and not utilization apparatus such as motors, furnaces, appliances.
- 2/ Production is significant.
- 3/ Production is significant; the most important Satellite producer.

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TABLE A-18
ELECTRONIC EQUIPMENT

Estimated Current Annual Production in Thousands of Units

| | <u>Radio Receiving Sets (Non-Military)</u> | <u>Radio Tubes</u> |
|---------------------------------|--|------------------------|
| USSR | <u>576</u> | <u>18,000</u> |
| Satellites | | |
| Albania | 0 | 0 |
| Austria (Soviet Zone) | 22 | 0 |
| Bulgaria | 0 | 0 |
| Czechoslovakia | 260 | 2,400 |
| Finland | 50 | 100 |
| Germany (Soviet Zone) | 32 | U |
| Hungary | 50 | 1,500 |
| Poland | 25 | 0 |
| Rumania | 0 | 0 |
| Yugoslavia | <u>0</u> | <u>0</u> |
| Total Satellites | <u>439</u> | <u>4,000</u> |
| Total USSR and Satellites | <u>1,015</u> | <u>22,000</u> |
| Non-Soviet Continental Europe | | |
| Austria (West Zones) | 67 | 848 |
| Benelux | 510 | 4,700 |
| Denmark | 90 | 100 |
| France | 1,000 | 10,000 |
| Germany (West Zones) | 300 | 2,800 |
| Greece | 0 | 0 |
| Italy | 350 | U |
| Norway | 140 | 0 |
| Portugal | 0 | 0 |
| Spain | 85 | 0 |
| Sweden | 150 | 1,000 |
| Switzerland | <u>50</u> | <u>0</u> |
| Total Non-Soviet Cont. Europe | <u>2,742</u> | <u>19,448</u> |
| Total Continental Europe & USSR | <u>3,757</u> | <u>41,448</u> |

Radar Sets

The current production rate of radar sets in the USSR is estimate to be 50 sets annually, though reports indicate a possible production of up to 500 "radar." If the latter figure represents actual production, it probably includes other types of equipment, such as I.F.F., radio altimeters, navigational aides, and possibly even television.

France is known to have produced a few radar sets but latest reports indicate that there is no current production. Czechoslovakia

Hungary, Germany, and Austria may be producing sets but no information is available on these countries. The remainder of the continental European countries have no production of radar sets.

Transmitting and Receiving Sets (Military Type)

The USSR is estimated to be producing 125,000 military type transmitting and receiving sets annually. However, many of these sets are not being used by the armed forces, but are used on trains tractor stations, collective farms, weather stations, and the like.

According to unconfirmed reports, 150 military-type sets are being produced daily in the Soviet zone of Germany. An annual figure based on this daily rate, however, gives a production which appears excessive.

The following countries are capable of producing military-type sets but no production figures are available: France, Belgium, Netherlands, Denmark, Norway, Sweden, Switzerland, Italy, Spain, Czechoslovakia, Hungary, and the west zones of Germany and Austria. No information is available on Spain and the Soviet zone of Austria. The remainder of the continental European countries are believed to have no production of military-type transmitting and receiving sets.

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TABLE A-19
NAVAL SHIPBUILDING

Estimated Current Annual Production in Tonnage

| | <u>Production</u> | <u>Estimated Capacity</u> |
|---------------------------------|---------------------|-----------------------------|
| USSR | <u>Unknown</u> | <u>120,450^{1/}</u> |
| Satellites | | |
| Albania | 0 | 0 |
| Austria (Soviet Zone) | 0 | 0 |
| Bulgaria | 0 | 0 |
| Czechoslovakia | 0 | 0 |
| Finland | 0 | 0 |
| Germany (Soviet Zone) | 0 | 0 |
| Hungary | 0 | 0 |
| Poland | 0 | 0 |
| Rumania | 0 | 0 |
| Yugoslavia | <u>0</u> | <u>6,000^{2/}</u> |
| Total Satellites | <u>0</u> | <u>6,000</u> |
| Total USSR and Satellites | <u>Unknown</u> | <u>126,450</u> |
| Non-Soviet Continental Europe | | |
| Austria (West Zones) | 0 | 0 |
| Benelux | 3,000 ^{3/} | 15,000 ^{3/} |
| Denmark | 200 | 1,000 |
| France | 500 | 35,000 ^{4/} |
| Germany (West Zones) | 0 | 0 |
| Greece | 0 | 0 |
| Italy | 0 | 20,000 |
| Norway | 100 | 1,000 |
| Portugal | 0 | 0 |
| Spain | 4,000 ^{5/} | 8,000 |
| Sweden | 100 | 15,000 |
| Switzerland | 0 | 0 |
| Total Non-Soviet Cont. Europe | <u>7,900</u> | <u>95,000</u> |
| Total Continental Europe & USSR | <u>Unknown</u> | <u>221,450</u> |

- Note: ^{1/} Major known yards; optimum figure which probably could be reached in emergency.
^{2/} Repair work on hand (naval). There is also some unknown capacity for assembly.
^{3/} Entirely in the Netherlands.
^{4/} Provided Potsdam agreement adhered to.
^{5/} Much of work suspended.

MAJOR SOVIET NAVAL SHIPBUILDING YARDS

| <u>LOCATION</u> | <u>NAME</u> | <u>CAPACITY OF YARD FOR SIMULTANEOUS BLDG.</u> |
|-----------------|------------------|---|
| Leningrad | Baltic #189 | 1 Battleship, 2 Cruisers, 9 Destroyers or Submarines (Est. tonnage: 27,000)* |
| | Marti #194 | 1- 22,000 ton ship, 1 Cruiser, 4 small submarines, and 11 small craft. (Est. tonnage: 13,000) |
| | Northern #190 | 9 Destroyers or submarines (Est. tonnage: 11,250) |
| | Sudemekh #196 | 2 Destroyers or submarines, 8 small submarines (Est. tonnage: 3,700) |
| Kronstadt | Admiralty Yard | 1 Submarine (Est. tonnage: 1,600) |
| Nikolaev | Marti #198 | 1 Battleship, 2 cruisers, 1 Icebreaker, 3 Destroyers or Submarines (Est. tonnage: 20,400) |
| | State Shipblang. | 2 Cruisers, 4 Destroyers, or submarines and 1 small submarine (Est. tonnage: 11,800) |
| Sevastopol | Yard #201 | 2-3 Destroyers, 4-5 Submarines, and 4 small submarines or small craft (Est. tonnage: 7,300) |
| Melotovsk | Yard #402 | 2 Cruisers, or 1 large ship, 2 destroyers, 3-4 submarines (Est. tonnage: 10,000) |
| Vladivostok | Dalzaved #202 | Estimated - 1 Cruiser, 2 Destroyers, 4 Submarines, simultaneously (Est. tonnage: 7,200) |
| Komsomolsk | Amur Yard #199 | 1 Cruiser, 2 Destroyers, 3 medium submarines and a number of small submarines simultaneously. (Est. tonnage: 7,200) |

Note: The above table is confined to the main naval shipyards.

There are in addition a number of smaller yards which could be utilized for prefabricating parts. Tonnages (totaling 120,450) represent maximum capacity; probably could not be reached in actual construction under normal conditions; probably could under emergency conditions.

*Figures shown are estimated equivalent capacity on an annual basis.

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TABLE A-20

MERCHANT SHIPBUILDING

Estimated Current Annual Production in Gross Tons of Self-Propelled Vessels

| | <u>Over 100 GT</u> |
|---------------------------------|--------------------|
| USSR | <u>100,000</u> |
| Satellites | |
| Albania | 3,000 |
| Austria (Soviet Zone) | 5,000 |
| Bulgaria | ** |
| Czechoslovakia | 5,000 |
| Finland | 10,000 |
| Germany (Soviet Zone) | 60,000 |
| Hungary | 5,000 |
| Poland | 10,000 |
| Rumania | 5,000 |
| Yugoslavia | <u>6,000</u> |
| Total Satellites | <u>109,000</u> |
| Total USSR and Satellites | <u>209,000</u> |
| Non-Soviet Continental Europe | |
| Austria (West Zones) | ** |
| Benelux | ** |
| Denmark | 200,000 |
| France | 100,000 |
| Germany (West Zones) | 75,000 |
| | <u>15,000</u> |
| Greece | * |
| Italy | 200,000 |
| Norway | 50,000 |
| Portugal | 15,000 |
| Spain | <u>35,000</u> |
| Sweden | 300,000 |
| Switzerland | * |
| Total Non-Soviet Cont. Europe | <u>990,000</u> |
| Total Continental Europe & USSR | <u>1,099,000</u> |

Note: Of the above production the tonnage of vessels over 1,000 GT is as follows: USSR 25,000; Finland 5,000; Poland 5,000; Yugoslavia 3,000. Capacity: Finland 25,000; Denmark 150,000; France 250,000; Italy 300,000; Norway 65,000; Western Germany 125,000.

* Negligible

** No data; probably negligible

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SOVIET MERCHANT SHIPBUILDING

There are no trustworthy statistics indicative of the actual and potential merchant shipbuilding capacity of the USSR. In the past, warship construction has far outweighed merchant shipbuilding in both Czarist and Communist Russia. There is no reason to expect a change in this peculiar situation, unless the potential naval value of merchant types increases radically in the future.

It is estimated that from 1929 to 1940 some 300,000 gross tons of merchant shipping were built in the USSR, giving an annual production rate of 25,000 gross tons. Damage to shipyards and priority demands for rehabilitation of coastal and inland waterways transportation have probably retarded construction of medium and large merchant ships so that, despite plans for increased production, present output is probably not more than 25,000 gross tons annually. The Fourth or current Five Year Plan proposes that in 1950, the tonnage of ships built shall be twice the tonnage of ships built in 1940, and that the mercantile fleet shall be increased by "600,000 tons, including 400,000 tons of self-propelled craft and 90,000 tons of towed craft." The same plan also stipulates that, "by 1950 sea going freight carriage shall be increased to 2.2 times that of pre-war." These vague official proposals fail to differentiate between naval and mercantile construction, and between seagoing and inland waterways tonnage. The freight carriage program also fails to specify the method of acquiring the requisite tonnage.

The only non-military types of vessels known to be building in the USSR are barges, tugs, river steamers and fishing vessels.

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TABLE A-21

MACHINE TOOLS

Estimated Current Annual Production in Metric Tons

| | |
|-------------------------------------|----------------|
| USSR | <u>22,500</u> |
| Satellites | |
| Albania | none |
| Austria (Soviet Zone) | none |
| Bulgaria | none |
| Czechoslovakia | 7,500 |
| Finland | negligible |
| Germany (Soviet Zone) | none |
| Hungary | 3,000 |
| Poland | 2,250 |
| Rumania | none |
| Yugoslavia | <u>none</u> |
| Total Satellites | <u>12,750</u> |
| Total USSR and Satellites | <u>35,250</u> |
| Non-Soviet Continental Europe | |
| Austria (West Zones) | 2,600 |
| Benelux | 21,530 |
| Denmark | 2,780 |
| France | 48,000 |
| Germany (West Zones) | 19,800 |
| Greece | negligible |
| Italy | 22,600 |
| Norway | 560 |
| Portugal | negligible |
| Spain | negligible |
| Sweden | 22,000 |
| Switzerland | <u>10,945</u> |
| Total Non-Soviet Continental Europe | <u>150,615</u> |
| Total Continental Europe & USSR | <u>186,065</u> |

Note: USSR and Satellite States have no stand-by capacity.

Non-Soviet Continental Europe figures are estimated
from dollar values at \$1500/ton.

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TABIE A-22

BEARINGS

Estimated Current Annual Production in Thousands of Assembled Bearing Units

| | |
|---------------------------------|-------------------|
| USSR | <u>40,000</u> |
| Satellites | |
| Albania | none |
| Austria (Soviet Zone) | none |
| Bulgaria | none |
| Czechoslovakia | 750 ^{1/} |
| Finland | none |
| Germany (Soviet Zone) | 500 |
| Hungary | none |
| Poland | none |
| Rumania | none |
| Yugoslavia | <u>none</u> |
| Total Satellites | <u>1,250</u> |
| Total USSR and Satellites | <u>41,250</u> |
| Non-Soviet Continental Europe | |
| Austria (West Zones) | 2,400 |
| Benelux | none |
| Denmark | none |
| France | 25,000 |
| Germany (West Zones) | 20,000 |
| Greece | none |
| Italy | 22,000 |
| Norway | none |
| Portugal | none |
| Spain | none |
| Sweden | 25,000 |
| Switzerland | <u>4,400</u> |
| Total Non-Soviet Cont. Europe | <u>98,800</u> |
| Total Continental Europe & USSR | <u>140,050</u> |

Note: USSR and Satellite States have no stand-by capacity.

1/ 1,500,000 capacity. Entire production dependent on import of ball component parts.

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TABLE A-23

AIRFRAMESEstimated Current Annual Production in Units and Pounds

| | <u>Number</u> | <u>Airframe Weight (lbs)</u> |
|---------------------------------|---------------|----------------------------------|
| USSR | <u>12,420</u> | <u>68,982,000</u> |
| Satellites | | |
| Albania | 0 | 0 |
| Austria (Soviet Zone) | 0 | 0 |
| Bulgaria | 0 | 0 |
| Czechoslovakia | 797 | 2,070,400 |
| Finland | 0 | 0 |
| Germany (Soviet Zone) | 0 | 0 |
| Hungary | 0 | 0 |
| Poland | 36 | 23,400 |
| Rumania | 100 | 540,000 |
| Yugoslavia | 0 | 0 |
| Total Satellites | <u>933</u> | <u>2,633,800</u> |
| Total USSR and Satellites | <u>13,353</u> | <u>71,615,800</u> |
| Non-Soviet Continental Europe | | |
| Austria (West Zones) | 0 | 0 |
| Benelux | 110 | 200,700 |
| Denmark | 50 | 30,400 |
| France | 839 | 1,966,503 |
| Germany (West Zones) | 0 | 0 |
| Greece | 0 | 0 |
| Italy | 116 | 672,000 |
| Norway | 0 | 0 |
| Portugal | 0 | 0 |
| Spain | 12 | 100,000 |
| Sweden | 180 | 762,800 |
| Switzerland | 25 | 57,000 |
| Total Non-Soviet Cont. Europe | <u>1,332</u> | <u>3,789,403</u> |
| Total Continental Europe & USSR | <u>14,685</u> | <u>75,405,203</u> |

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AIRCRAFT ENGINES

Estimated Current Annual Production in Units and Horsepower

| | <u>Number</u> | <u>Horsepower</u> |
|---------------------------------|---------------|-------------------|
| USSR | <u>45,240</u> | <u>71,460,000</u> |
| Satellites | | |
| Albania | 0 | 0 |
| Austria (Soviet Zone) | 0 | 0 |
| Bulgaria | 0 | 0 |
| Czechoslovakia | 1,000 | 191,340 |
| Finland | 0 | 0 |
| Germany (Soviet Zone) | 0 | 0 |
| Hungary | 0 | 0 |
| Poland | 0 | 0 |
| Rumania | 100 | 147,500 |
| Yugoslavia | 0 | 0 |
| Total Satellites | <u>1,100</u> | <u>338,840</u> |
| Total USSR and Satellites | <u>46,340</u> | <u>71,798,840</u> |
| Non-Soviet Continental Europe | | |
| Austria (West Zones) | 0 | 0 |
| Benelux | 0 | 0 |
| Denmark | 0 | 0 |
| France | 1,426 | 663,872 |
| Germany (West Zones) | 0 | 0 |
| Greece | 0 | 0 |
| Italy | 0 | 0 |
| Norway | 0 | 0 |
| Portugal | 0 | 0 |
| Spain | 60 | 14,000 |
| Sweden | 105 | 74,775 |
| Switzerland | 0 | 0 |
| Total Non-Soviet Cont. Europe | <u>1,591</u> | <u>752,647</u> |
| Total Continental Europe & USSR | <u>47,931</u> | <u>72,551,487</u> |